AD-95/ML-95
Service Manual

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072298SL/cj

ADC Part No. 450188

Retain This Manual In A Safe Place For Future Reference

American Dryer Corporation products embody advanced concepts in engineering, design, and safety. If this product is properly maintained, it will provide many years of safe, efficient, and trouble-free operation.

ONLY qualified technicians should service this equipment.

OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment or specified in the installation/operator's manual included with the dryer.

The following "**FOR YOUR SAFETY**" caution **must be** posted near the dryer in a prominent location.

FOR YOUR SAFETY	POUR VOTRE SÉCURITÉ
Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.	Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de yout autre appareil.

We have tried to make this manual as complete as possible and hope you will find it useful. **ADC** reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and material, and to change or discontinue models.

Important

For your convenience, log the following information:

DATE OF PURCHASE _____ **MODEL NO.** _____

DISTRIBUTORS NAME _____

Serial Number(s) _____

_____

_____

Replacement parts can be obtained from your distributor or the ***ADC*** factory. When ordering replacement parts from the factory, you can FAX your order to ***ADC*** at (508) 678-9447 or telephone your orders directly to the ***ADC*** Parts Department at (508) 678-9000. Please specify the dryer ***model number*** and ***serial number*** in addition to the ***description*** and ***part number***, so that your order is processed accurately and promptly.

The illustrations on the following pages may not depict your particular dryer exactly. The illustrations are a composite of the various dryer models. Be sure to check the descriptions of the parts thoroughly before ordering.

"IMPORTANT NOTE TO PURCHASER"

Information must be obtained from your local gas supplier on the instructions to be followed if the user smells gas. These instructions must be posted in a prominent location near the dryer.

IMPORTANT

YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE STEAM SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) ***STANDARDS.***

"Caution: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper operation."

«Attention: Lor des opérations d'entretien des commandes étiqueter tous fils avant de les déconnecter. Toute erreur de câblage peut étre une source de danger et de panne.»

CAUTION

DRYERS SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.

WARNING

CHILDREN SHOULD NOT BE ALLOWED TO PLAY ON OR NEAR THE DRYER(S).

CHILDREN SHOULD BE SUPERVISED IF NEAR DRYERS IN OPERATION.

FOR YOUR SAFETY

DO NOT DRY MOP HEADS IN THE DRYER.

DO NOT USE DRYER IN THE PRESENCE OF DRY CLEANING FUMES.

WARNING

UNDER NO CIRCUMSTANCES should the door switch or the heat circuit devices ever be disabled.

WARNING

The dryer must never be operated with any of the back guards, outer tops, or service panels removed. PERSONAL INJURY or FIRE COULD RESULT.

WARNING

DRYER MUST NEVER BE OPERATED WITHOUT THE LINT FILTER/SCREEN IN PLACE, EVEN IF AN EXTERNAL LINT COLLECTION SYSTEM IS USED.

IMPORTANT

PLEASE OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment and/or specified in the installation and operator's manual included with the dryer.

Dryers ***must not*** be installed or stored in an area where it will be exposed to water or weather.

The wiring diagram for the dryer is located in the front electrical control box area.

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SECTION I

Important Information

A. Safety Precautions

1. ***DO NOT*** store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

2. Purchaser or user should consult the local gas supplier for proper instructions to be followed in the event the user smells gas. The instructions ***should be*** posted in a prominent location.

3. Dryer ***must be*** exhausted to the outdoors.

4. Although ***ADC's*** dryer is a very versatile machine, there are some articles, that due to fabric composition or cleaning method, should not be dried in it.

WARNING:	Dry only water-washed fabrics. ***DO NOT*** dry articles spotted or washed in dry cleaning solvents, a combustible detergent, or "all-purpose" cleaners. Fire or explosion could result.

WARNING:	***DO NOT*** dry rags or articles coated with gasoline, kerosene, paint, or wax. Fire or explosion could result.

WARNING:	***DO NOT*** dry mop heads. Contamination by wax or flammable solvents will create a fire hazard.

WARNING:	***DO NOT*** use heat for drying articles that contain plastic, foam, sponge rubber, or similarly textured rubberlike materials. Drying in a heated tumbler may damage plastic or rubber and also may be a fire hazard.

5. A program ***should be*** established for the inspection and cleaning of lint in the burner area and exhaust duct work. The frequency of cleaning can best be determined from experience at each location.

WARNING:	The collection of lint in the burner area and exhaust duct work can create a potential fire hazard.

6. For personal safety, the dryer ***must be*** electrically grounded in accordance with local codes and the National Electric Code ANSI/NFPA No. 70-LATEST EDITION.

NOTE: Failure to do so will void the warranty.

7. Under no circumstances should the dryer door, lint drawer switches or heat safety devices ever be disabled.

WARNING: PERSONAL INJURY OR FIRE COULD RESULT.

8. Articles should never be left unattended for an extended period of time in the basket after completion of the drying and cooling cycles.

9. This dryer is not to be used in the presence of dry cleaning solvents or fumes.

10. Read and follow ***ALL*** caution and direction labels attached to dryer.

WARNING:	CHILDREN ***SHOULD NOT BE*** ALLOWED TO PLAY ON OR IN THE DRYERS CHILDREN ***SHOULD BE*** SUPERVISED IF NEAR DRYERS IN OPERATION.

SECTION II
Routine Maintenance

A. Cleaning

A program and schedule ***should be*** established for periodic inspection, cleaning, and removal of lint from various areas of the dryer, as well as throughout the duct work system. The frequency of cleaning can best be determined from experience at each location. Maximum operating efficiency is dependent upon proper air circulation. The accumulation of lint can restrict this airflow. If the guidelines in this section are met, an ***ADC*** dryer will provide many years of efficient, trouble free, and – most importantly – safe operation.

> ***WARNING:*** LINT FROM MOST FABRICS IS HIGHLY COMBUSTIBLE. THE ACCUMULATION OF LINT CAN CREATE A POTENTIAL FIRE HAZARD.

> ***WARNING:*** KEEP DRYER AREA CLEAR AND FREE FROM COMBUSTIBLE MATERIALS, GASOLINE AND OTHER FLAMMABLE VAPORS AND LIQUIDS.

> ***NOTE:*** Suggested time intervals shown for average usage which is considered six (6) to eight (8) operational (running) hours per day.

Clean lint drawer and screen every third load.

> ***NOTE:*** Frequency can best be determined at each location.

Daily (beginning) of each work shift.

Clean lint from the drawer and screen. Inspect lint screen and replace if torn.

Weekly

Clean lint accumulation from lint chamber, thermostat and microprocessor temperature sensor (sensor bracket) area.

> ***WARNING:*** To avoid the hazard of electrical shock, discontinue electrical supply to dryer.

90 Days

Remove lint from basket, drive motors and surrounding areas. Remove lint from gas valve burner area with a dusting brush or vacuum cleaner attachment.

> ***NOTE:*** To prevent damage, avoid cleaning or touching ignitor and flame-probe assembly.

Remove lint accumulation from inside control box and at rear area behind control box.

6 Months

Inspect and remove lint accumulation in customer-furnished exhaust duct work system and from dryer's internal exhaust ducting.

WARNING: THE ACCUMULATION OF LINT IN THE EXHAUST DUCT WORK CAN CREATE A POTENTIAL FIRE HAZARD.

WARNING: Do not obstruct the flow of combustion and ventilation air. Check customer furnished back draft damper in exhaust duct work. Inspect and remove any lint accumulation which can cause damper to bind or stick.

NOTE: A back draft damper that is sticking partially closed can result in slow drying and shutdown of the heat circuits safety switches or thermostats.

NOTE: When cleaning dryer cabinets, avoid using harsh abrasive. A product intended for cleaning appliances is recommended.

B. Adjustments

Seven Days after Installation and every 6 Months

Inspect bolts, nuts, screws (bearing set screws), nonpermanent gas connections (union, shut-off valves, orifices, and ground connections). Motor and drive belts should be examined. Cracked or seriously frayed belts should be replaced. Tighten loose V-belts when necessary. Complete operational check of controls and valves. Complete operational check of all safety devices (door switch, lint drawer switch, sail switch, burner and hi-limit thermostats).

C. Lubrication

The motor bearings, idler bearings, and basket (tumbler) bearings are permanently lubricated. No lubrication is necessary.

The impeller (fan) shaft bearing should be lubricated every three (3) months.

SECTION III
Installation Requirements

Installation ***should be*** performed by competent technicians in accordance with local and state codes. In the absence of these codes, installation must conform to applicable AMERICAN NATIONAL STANDARDS: National Fuel Gas Code ANSI Z223.1-LATEST EDITION or National Electric Code ANSI/NFPA No. 70-LATEST EDITION, or Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION (for Electrical Connections).

A. Enclosure, Air Supply, and Exhaust Requirements

> ***NOTE:*** The following information is very brief and general. For detailed description, refer to the AD-95 Installation Manual supplied with dryer. (ADC P/N 112197)

Bulkheads and partitions around the dryer ***should be*** made of noncombustible materials. Allowances ***should be*** made for the opening and closing of the control door and lint door. (Refer to appropriate installation manual for recommended distances and minimum allowances required.)

When the dryer is operating, it draws in room air, heats it, passes this air through the basket (tumbler), and exhausts it out of the building. Therefore, the room air must be continually replenished from the outdoors. If the makeup air is inadequate, drying time and drying efficiency will be adversely affected. Ignition problems and sail switch "fluttering" problems on gas dryers may result, and you also could have premature motor failure from overheating. The air supply ***must be*** given careful consideration to insure proper performance of each dryer.

> ***IMPORTANT:*** Makeup air ***must be*** provided from a source free of dry cleaning fumes. Makeup air that is contaminated by dry cleaning fumes will result in irreparable damage to motors and other dryer components.

Exhaust duct work ***should be*** designed and installed by a competent technician. Improperly sized duct work will create excessive back pressure which will result in slow drying, increased use of energy, and shutdown of the burner by the airflow (sail) switch, burner hi-limit or lint chamber hi-heat protector thermostat. (Refer to appropriate Installation Manual for more detail.)

> ***CAUTION: IMPROPERLY SIZED OR INSTALLED EXHAUST DUCT WORK CAN CREATE A POTENTIAL FIRE HAZARD.***

B. Electrical and Gas Requirements

It is your responsibility to have ***ALL*** electrical connections made by a properly licensed and competent electrician to assure the electrical installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, ***ALL*** electrical connections, material, and workmanship must conform to the applicable requirements of the National Electric Code ANSI/NFPA No. 70-LATEST EDITION, or Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION (for Electrical Connections).

> ***IMPORTANT:*** Failure to comply with these codes or ordinances and the requirements stipulated in this manual can result in personal injury or component failure.

The dryer installation ***must meet*** the AMERICAN NATIONAL STANDARD, NATIONAL FUEL GAS CODE ANSI Z223.1-LATEST EDITION, as well as, local codes and ordinances, and ***must be*** done by a qualified technician, or Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION (for Electrical Connections).

> ***NOTE:*** Undersized gas piping will result in ignition problems and slow drying and can create a safety hazard.

The dryer ***must be*** connected to the type of gas (natural or L.P.) indicated on the dryer data label. If this information does not agree with the type of gas available, contact the distributor who sold the dryer or contact the factory.

The gas input ratings shown on the dryer data label are for elevations up to 2,000 feet, unless elevation requirements of over 2,000 feet were specified at the time the dryer order was placed with the factory. The adjustment for dryers in the field for elevations over 2,000 feet are made by changing the burner orifices. If this adjustment is necessary, contact the distributor who sold the dryer or contact the factory.

> ***NOTE:*** Any burner changes ***must be*** made by a qualified technician.

C. Operational Service Check Procedure

1. Turn on electric power to the dryer.
2. To start dryer:
    a. Display will read "READY"
    b. Press "E" touch pad on the keyboard of microprocessor controller (computer).
    c. The dryer will start and display will show "dRYING MANUAL CYCLE, 30 MIN REMAIN," then display the drum temp.

> ***NOTE:*** Pressing touch pads A, B, C, D and F will also start the dryer. Six (6) preprogrammed drying cycles (A through F) have been stored in the computer's memory. (See computer operator's manual for details.)

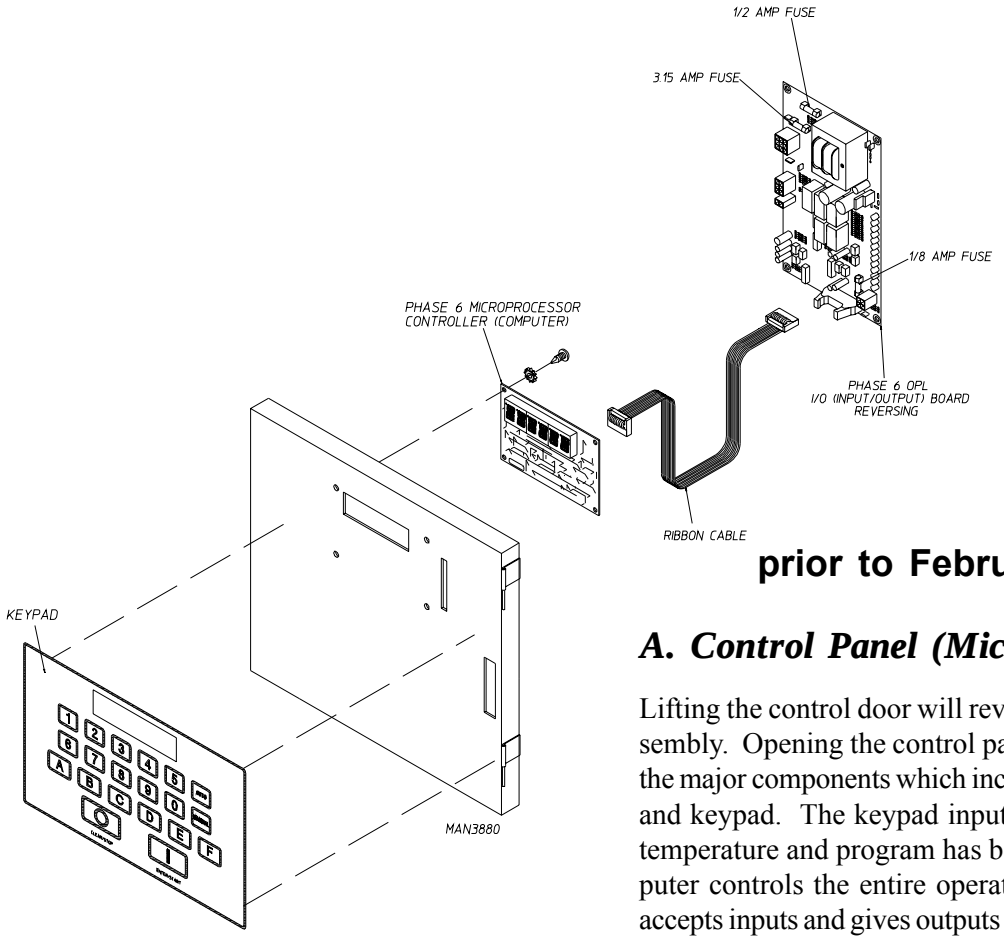
3. Make a complete operational check of all the operating controls to assure that the timing is correct, temperature selection switches are functioning, etc.
4. Make a complete operational check of all safety-halted circuits: door switches, hi-limit thermostat, sail switch, cycling thermostats, etc.
5. For gas dryers a gas pressure test should be taken at the gas valve pressure tap of each dryer to assure that the water column pressure is correct and consistent.

> **NOTE:** Water column pressure requirements (measured at the pressure tap on the gas valve body):
> Natural Gas - 3.5 to 4 inch water column
>
> L.P. Gas - 10.5 to 11 inch water column.

6. If computer program changes are required, refer to the Phase 6 OPL Operator's Manual (ADC P/N 113022) for details.
7. The dryer should be operated through one complete cycle to assure that no further adjustments are necessary and that all components are functioning properly.
8. Check the electric service phase sequence. While the dryer is operating, check to see if the blower wheel is rotating in the proper direction. Looking from the front, the blower wheel should spin in the clockwise direction. If so, the phasing is correct. If the phasing is incorrect, reverse two (2) leads at connections L1, L2 or L3 of power supply to the dryer.

SECTION IV

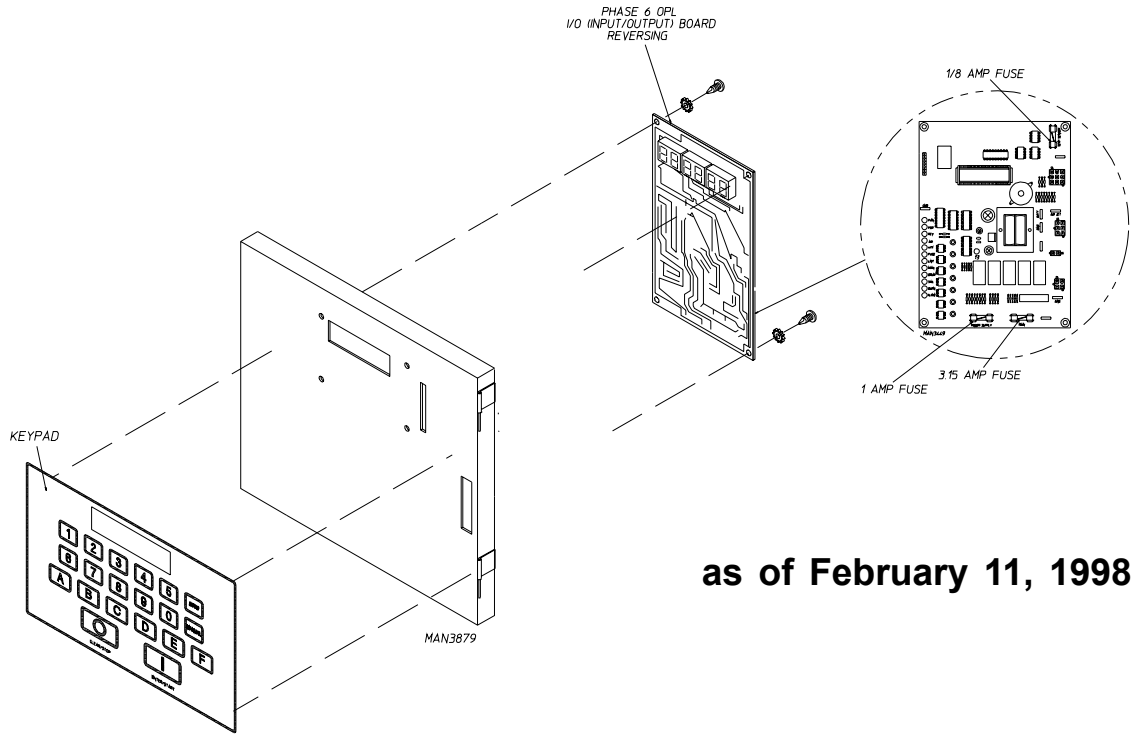
Description of Parts



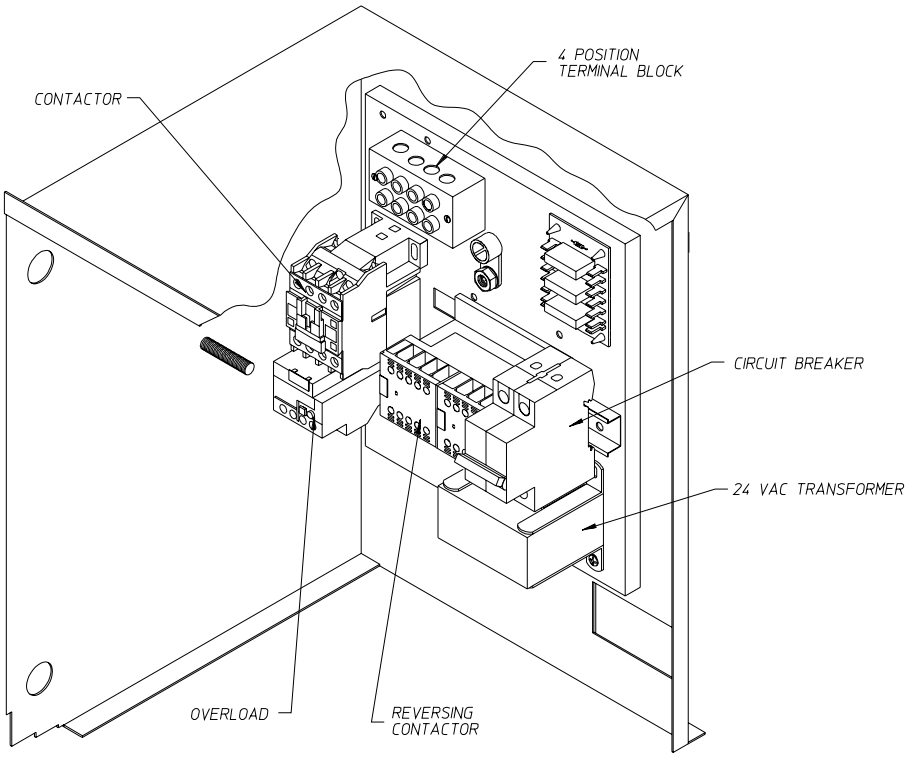
prior to February 11, 1998

A. Control Panel (Microprocessor)

Lifting the control door will reveal the control panel assembly. Opening the control panel will allow access to the major components which include the computer board and keypad. The keypad inputs to the computer what temperature and program has been selected. The computer controls the entire operation of the machine. It accepts inputs and gives outputs throughout the machine.



as of February 11, 1998

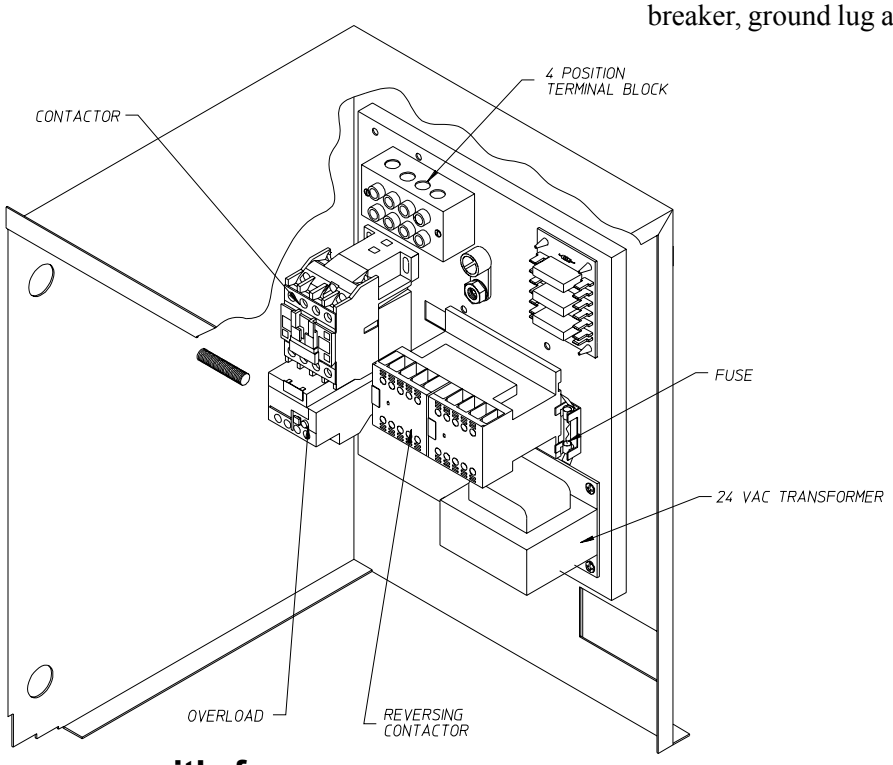


...with circuit breaker

MAN3882

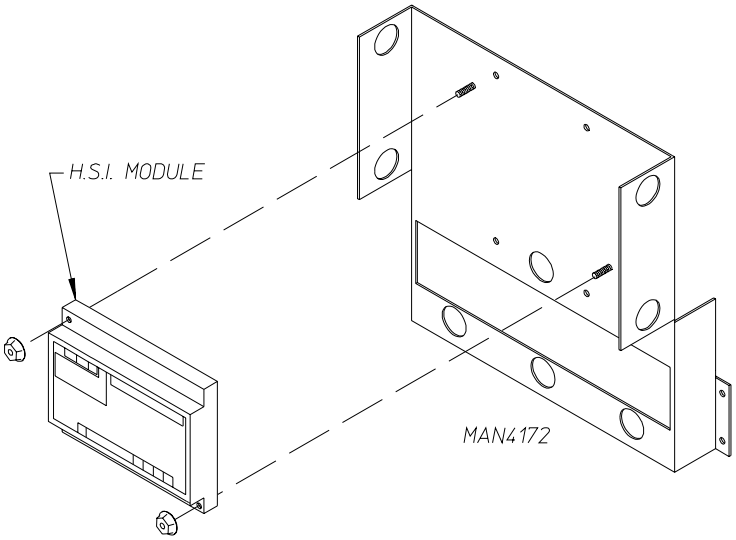
B. Reversing Relay Panel

Lifting the control door will reveal the reversing relay box. Located on the back of the relay box is the reversing relay panel. Included on this panel is a four (4) position terminal block, blower overload, blower contactor, reversing contactor, 24VAC transformer, fuse or circuit breaker, ground lug and an arc suppressor (A.S.) board.



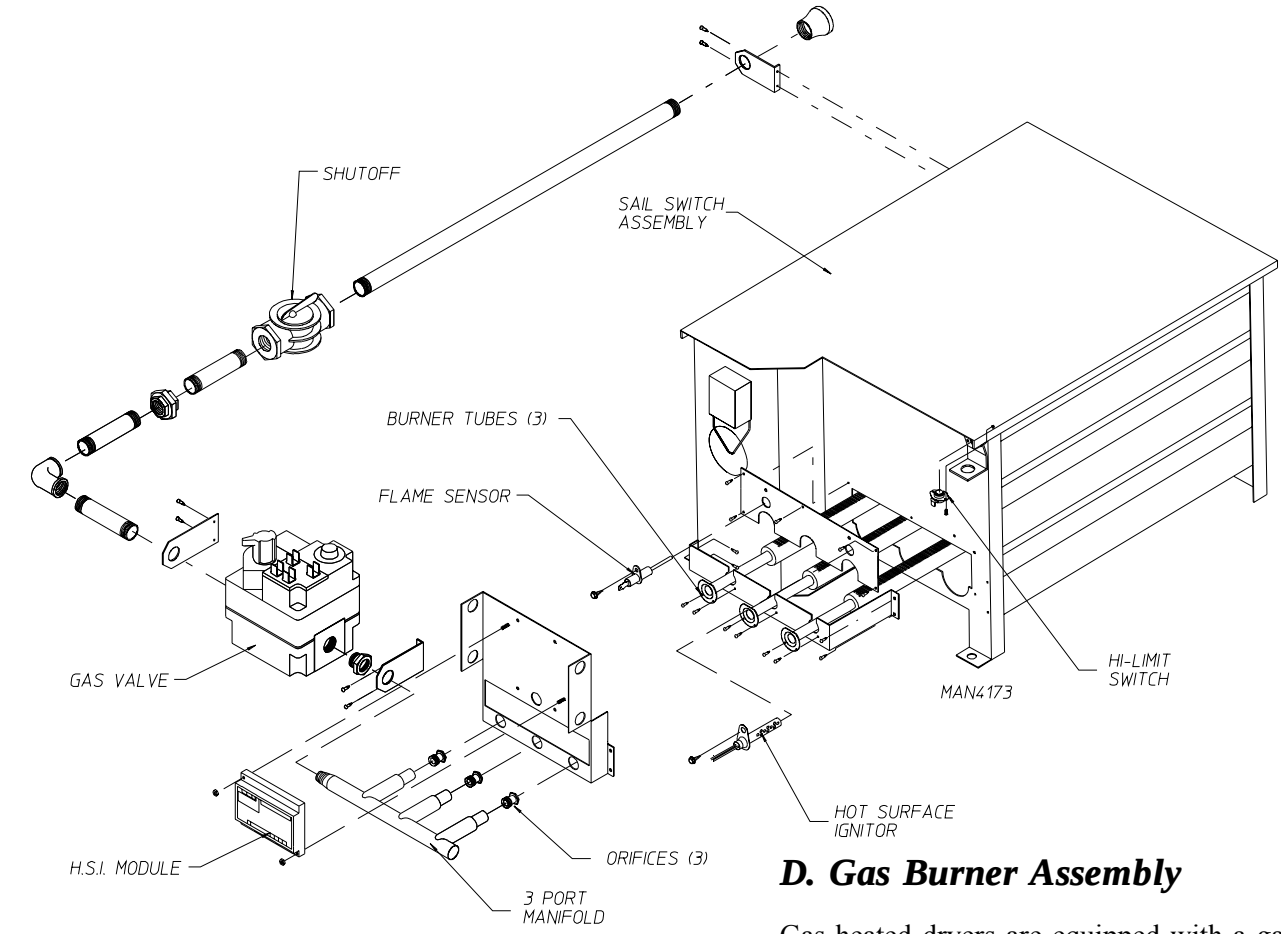
...with fuses

MAN3883



C. HSI Module (Gas Models Only)

The HSI system consists of a microprocessor-based control module, along with a hot surface ignitor probe and a flame probe assembly. The hot surface ignitor is a silicon carbide ignitor that upon application of 24VAC will glow bright orange for the inter-purge time period. Upon ignition, the resistance in the flame sensor electrode changes and the information is sent to the HSI module via the sensor probe lead connection to the module. Once the resistance is changed and sensed, the HSI module will sustain the gas flow (provide 24VAC power to the gas valve).

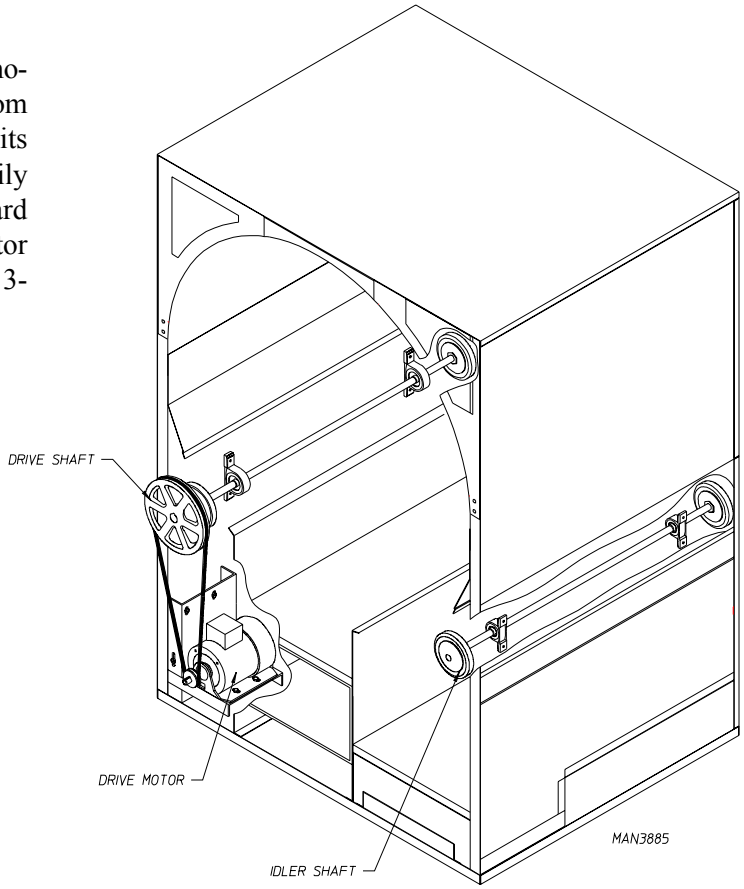


D. Gas Burner Assembly

Gas-heated dryers are equipped with a gas burner assembly consisting of three (3) burner tubes, gas valve, glo bar, flame sensor, sail switch, and hi-limit thermostat. The inlet piping enters through the rear of the dryer on the left-hand side (viewing from the front) and runs to the front of the dryer where the gas valve is located.

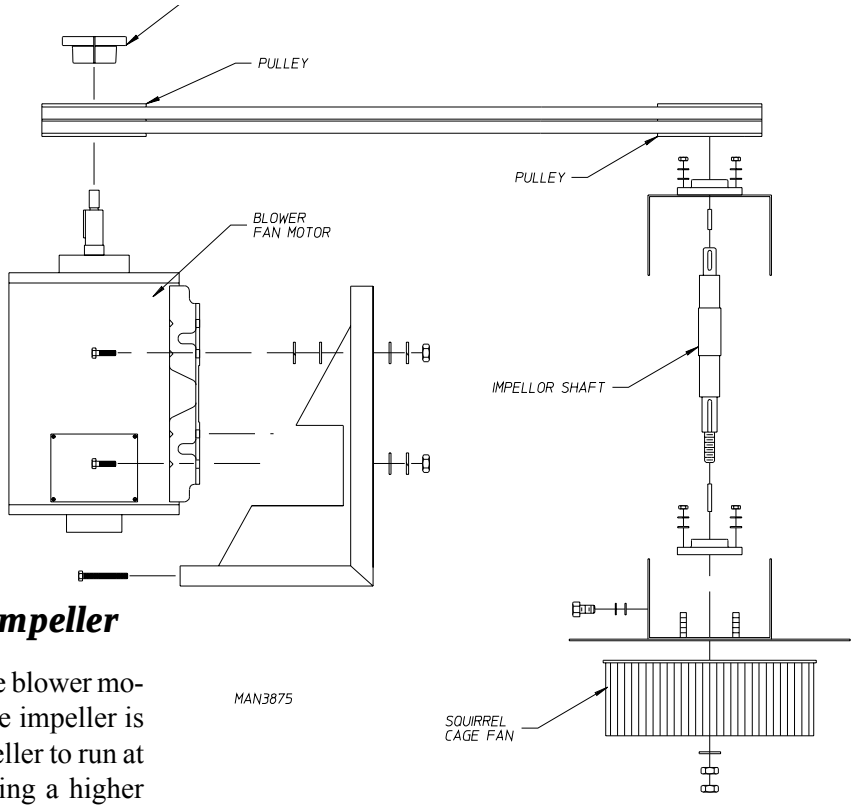
E. Drive Motor

The TEFC (totally enclosed, fan-cooled) drive motor is located in the front left corner (viewing from front) behind the front panel of the dryer. It sits on an adjustable base so the motor can be easily adjusted to the left or right, up or down, forward or backward. The drive motor is a 1/2 HP motor and operates on 208 to 460 volts, 50/60 hertz, 3-phase.

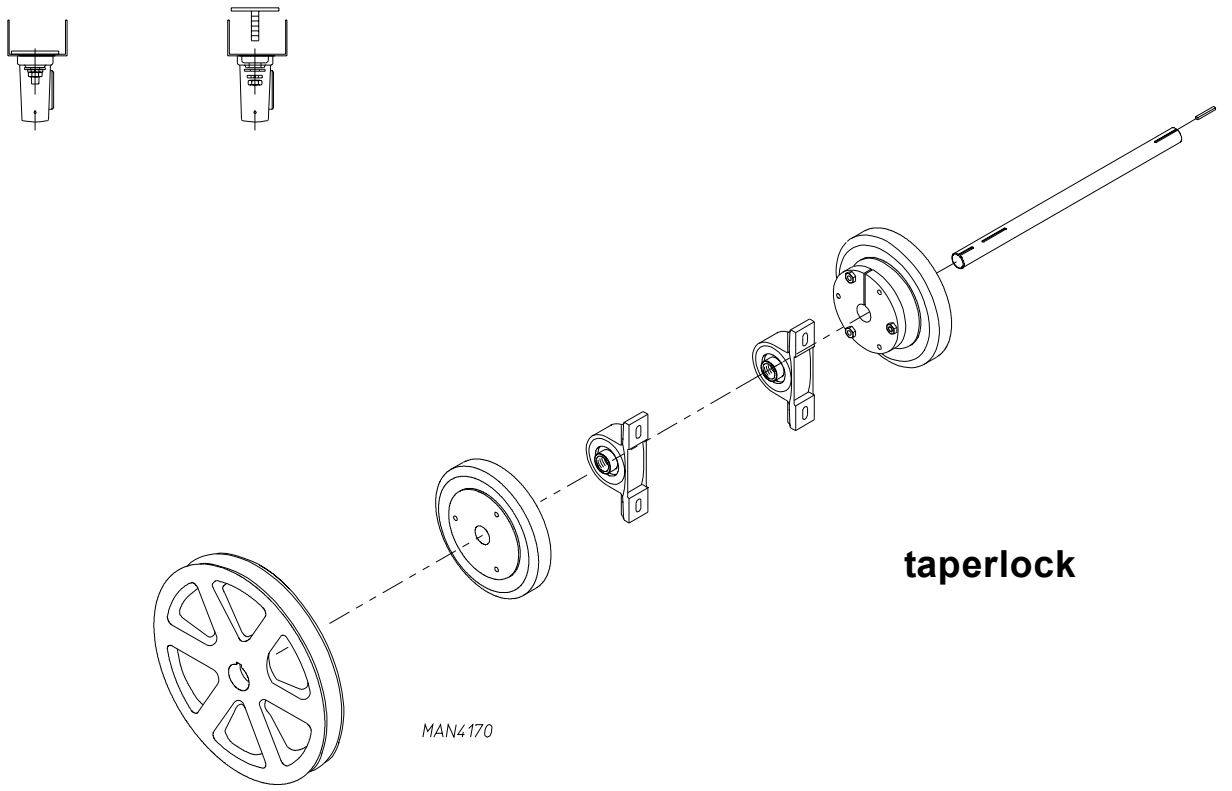


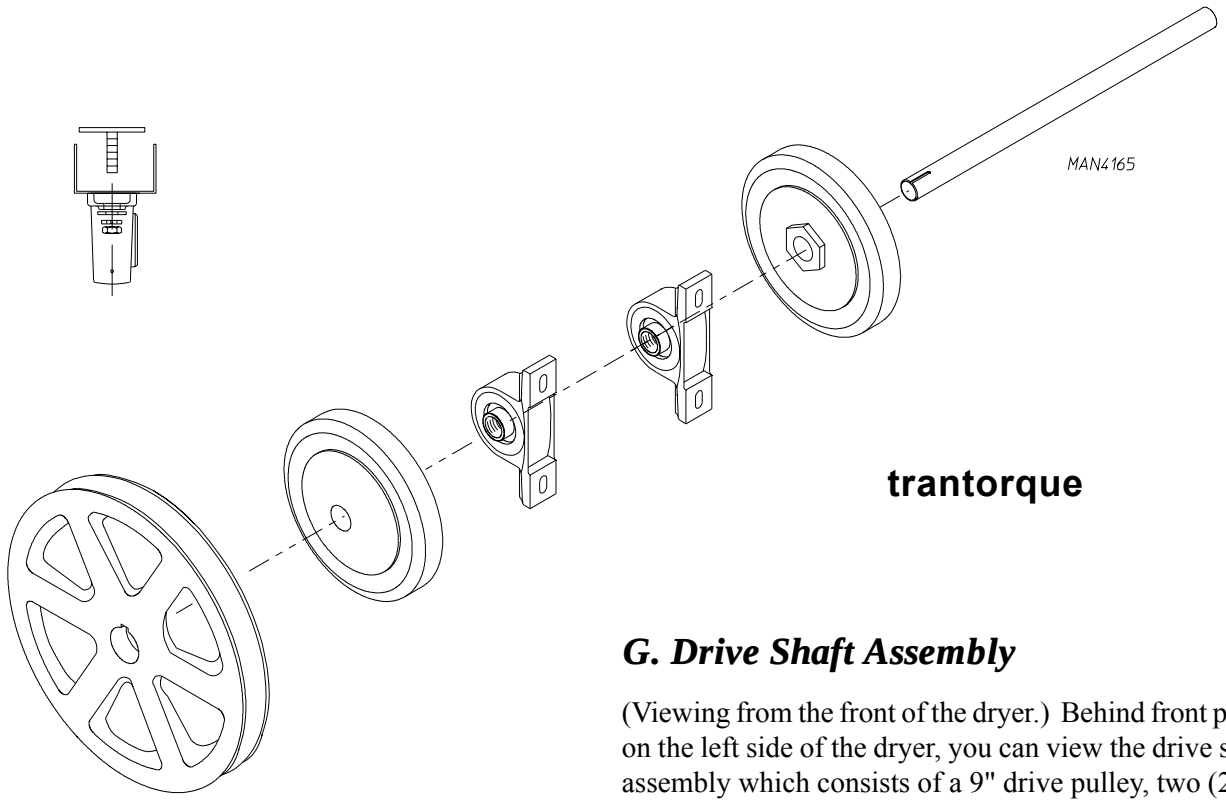
F. Blower Motor and Impeller

The impeller is shaft driven. The blower motor drives the shaft on which the impeller is mounted. This enables the impeller to run at a higher RPM, thereby producing a higher airflow (CFM).



NOTE: The bearing on this type of blower assembly ***should be*** greased according to the maintenance section of this manual.



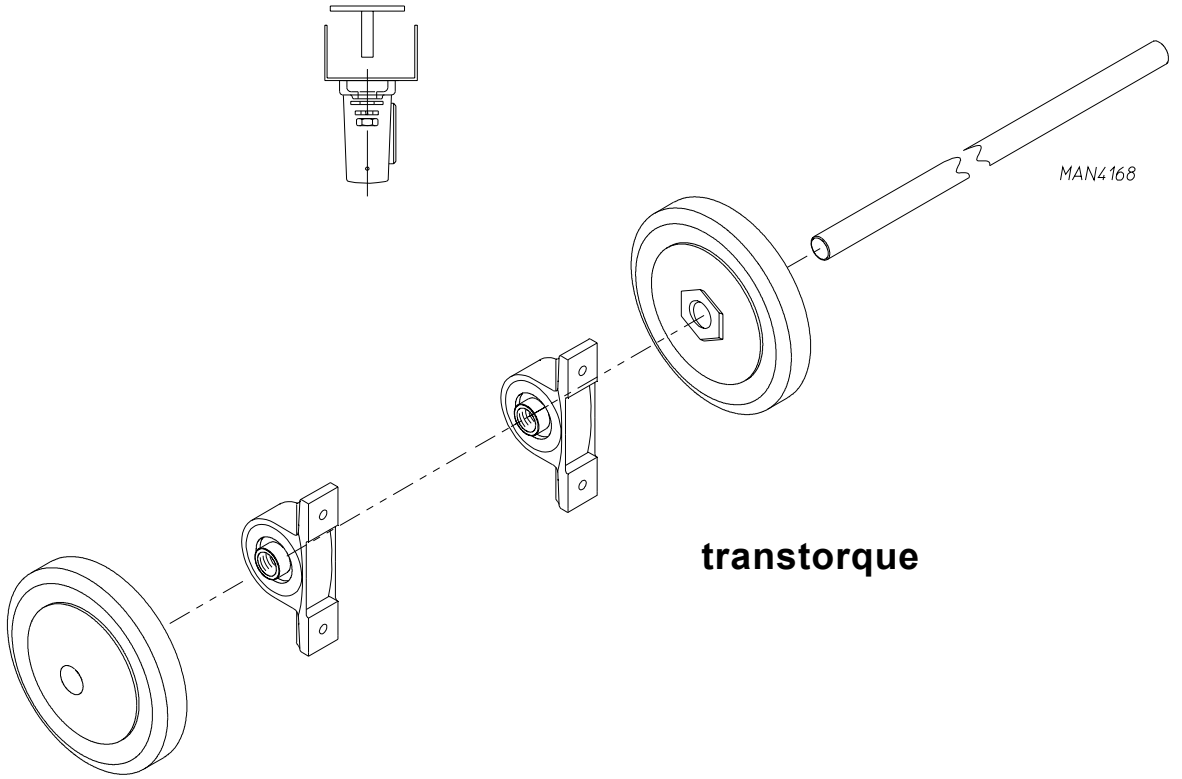


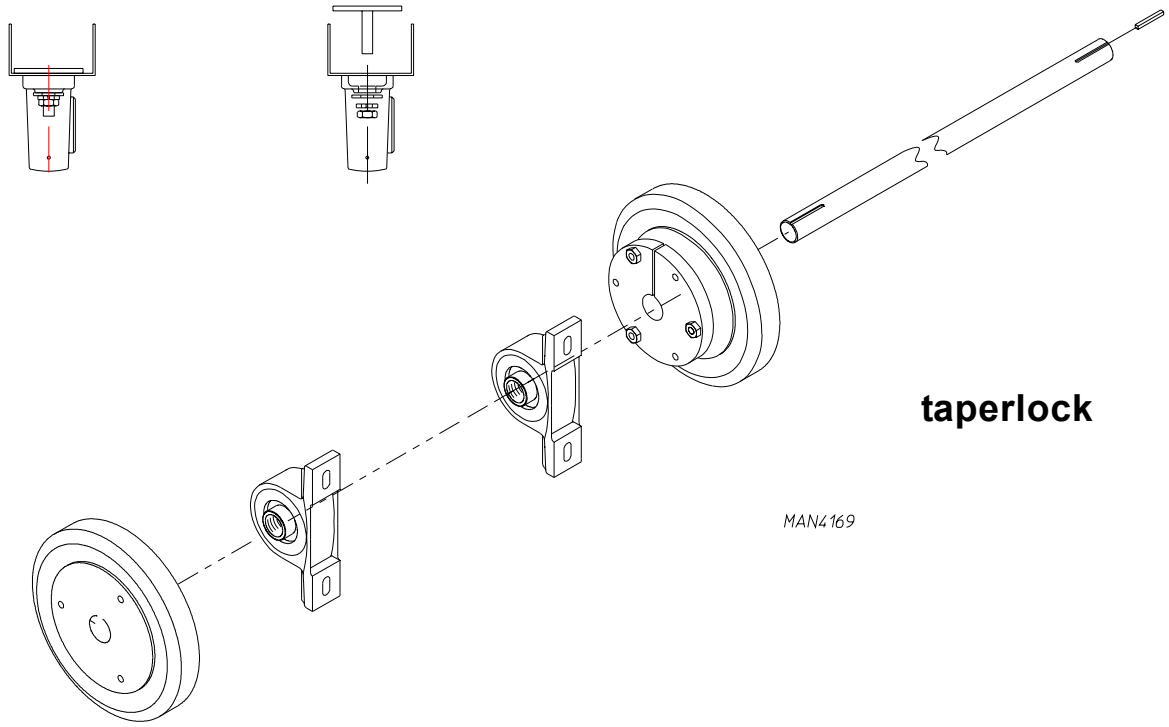
G. Drive Shaft Assembly

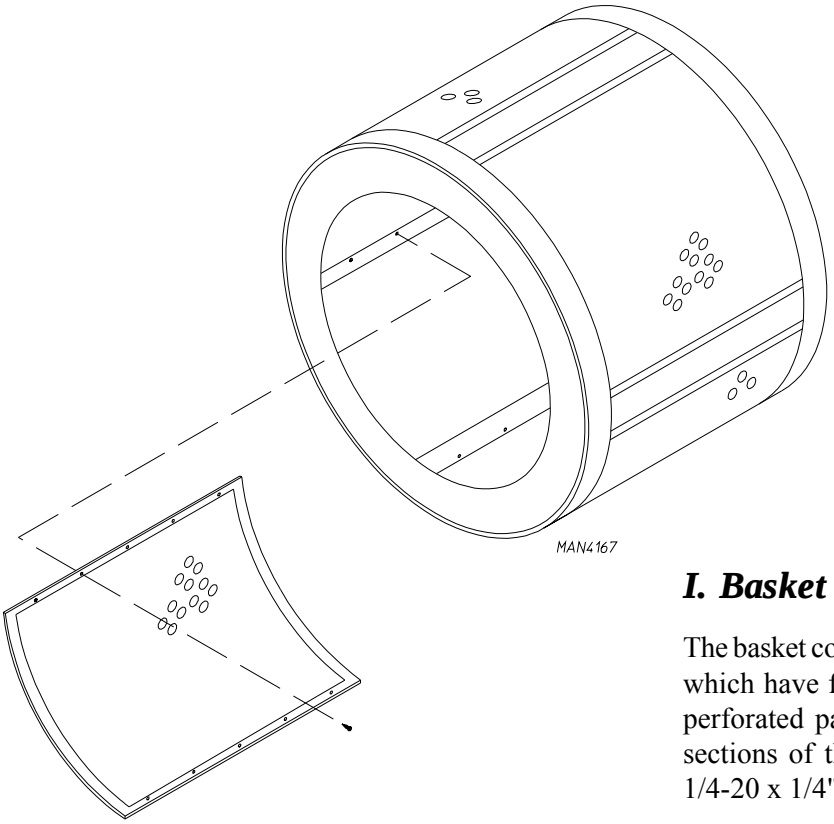
(Viewing from the front of the dryer.) Behind front panel on the left side of the dryer, you can view the drive shaft assembly which consists of a 9" drive pulley, two (2) 6" wheels, two (2) trantorques, on models manufactured prior to December 15, 1997; or with two (2) taperlock bearings, on models manufactured after December 15, 1997; and two (2) 1" pillow block bearings.

H. Idler Shaft Assembly

(Viewing from the front of the dryer.) Behind the front panel on the right side of the dryer you will view the idler shaft assembly which consists of two (2) 6" wheels, two (2) transtorque on models manufactured prior to December 15, 1997; or with two (2) taperlock bearings on models manufactured after December 15, 1997; and two (2) 1" pillow block bearings.

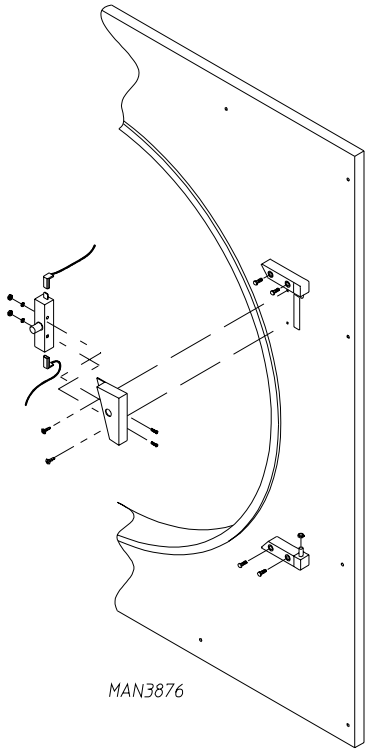




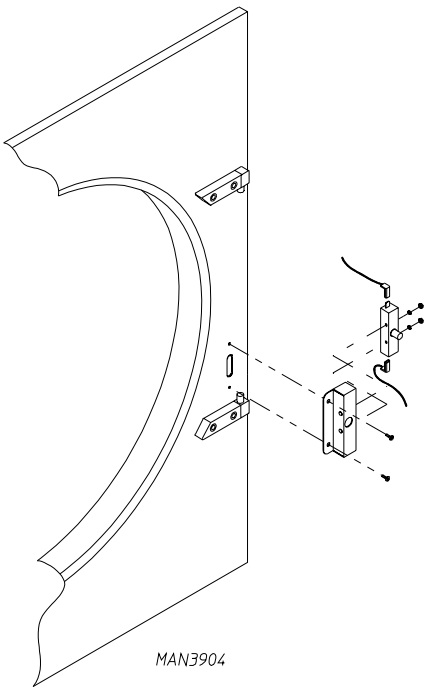


I. Basket (Tumbler)

The basket consists of a basket (tumbler) weldment which have four (4) ribs and four (4) removable perforated panels which are mounted to the rib sections of the basket (tumbler) weldment with 1/4-20 x 1/4" socket button head screws.



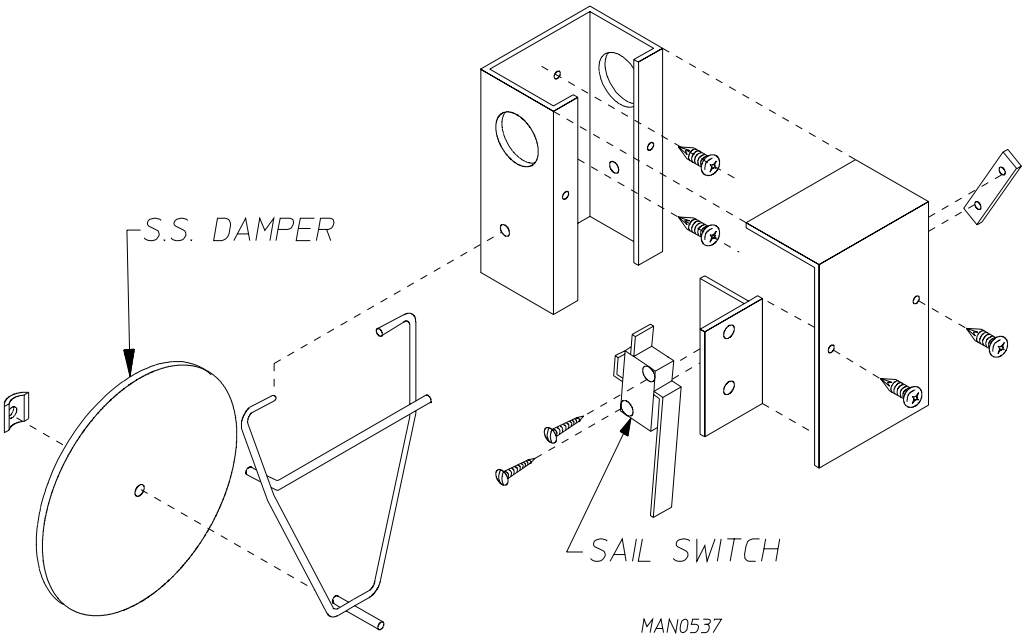
CURRENT PRODUCTION



PAST PRODUCTION

J. Main Door Switch

The main door switch is mounted to the front panel behind the main door. When the main door opens, the switch will also open, preventing the dryer from operating. The main door switch is a safety device and should never be disabled.



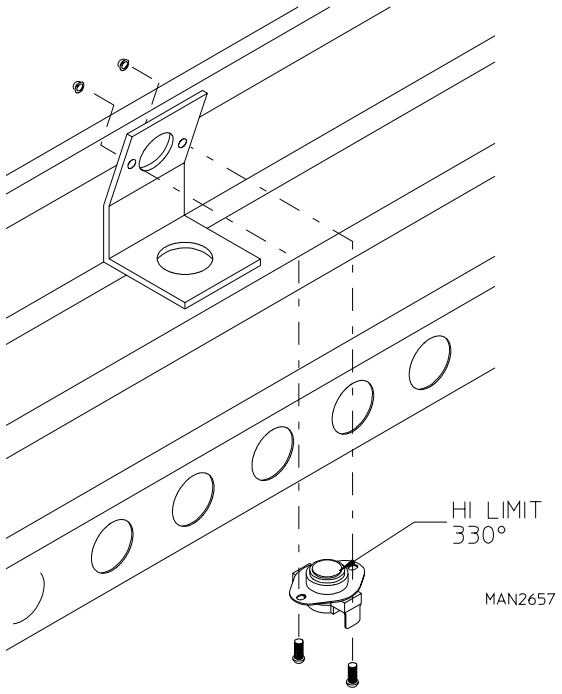
K. Sail Switch (Gas Models Only)

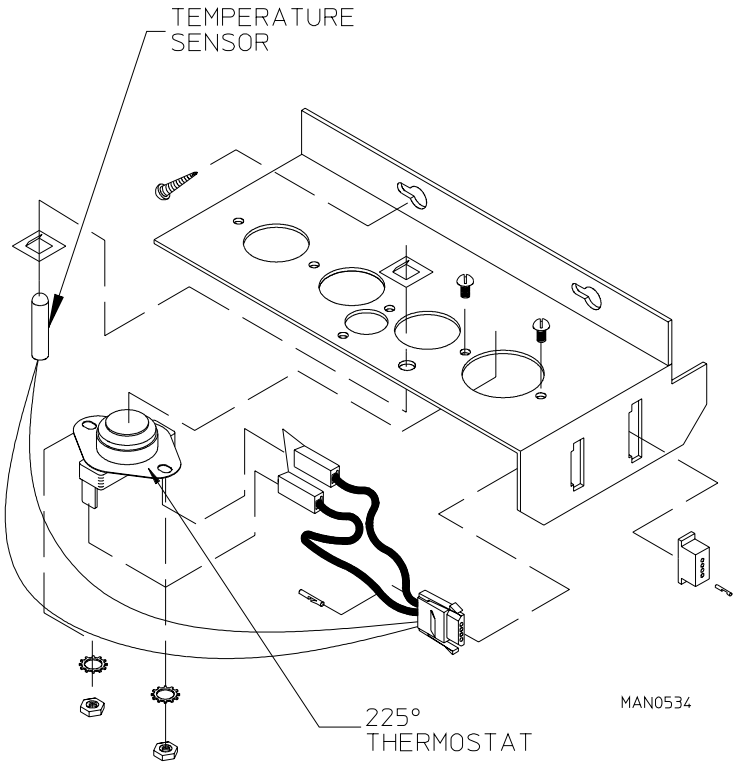
The sail switch is located on the front of the burner box. A sail switch consists of a round damper plate on a lever arm which is in contact with an electric switch. When the fan or air blower comes on, it draws air through the gas burner. This creates a negative pressure inside the burner box, and this negative pressure pulls in the round damper and activates the sail switch. If there is improper air flow, the damper will not pull in, preventing the burner from starting. The display will also read "no airflow flow" with an audio indication. Improper airflow can be caused by improperly designed exhaust ducting where the duct run is too long or has too many sharp bends in it. It can also be caused by a lack of makeup air.

L. Hi-Limit (Gas Models Only)

Prior to May 26, 1998. The high limit thermostat is an automatic reset disc-type thermostat set at 330º F and located near the burner. If the burner flame gets too hot, this thermostat will shut off the burner. This is generally caused by low airflow through the dryer. In a hi-limit situation the display will read "bURNER SAFETY FAIL" with an audio indication.

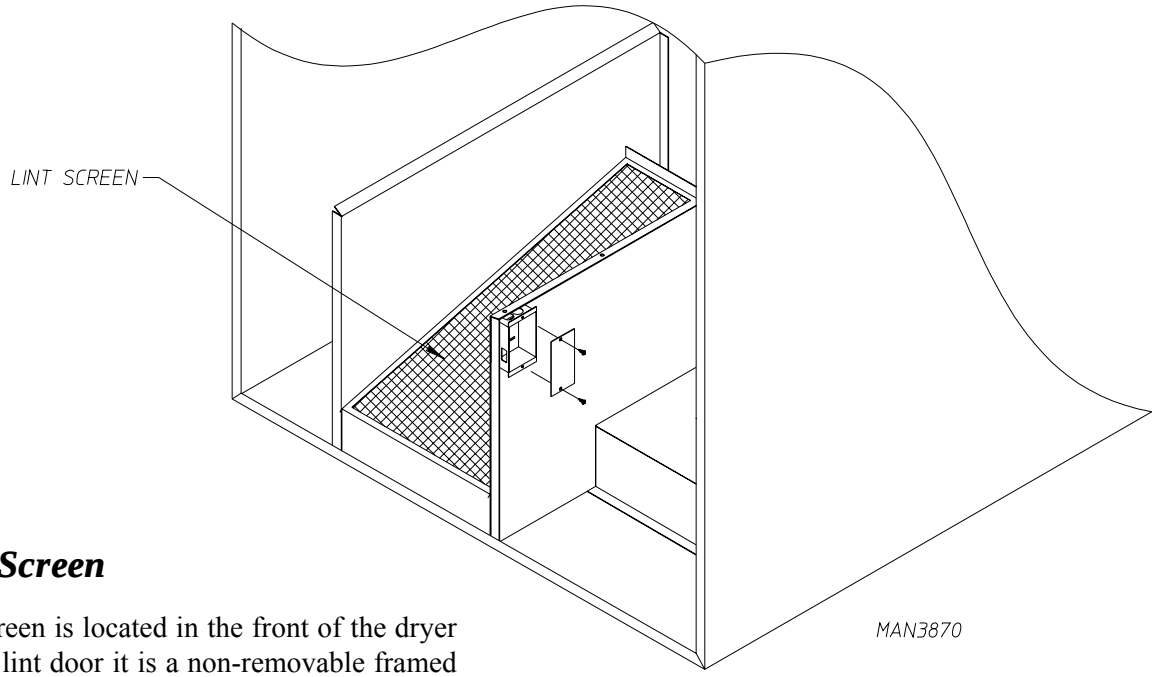
As of May 26, 1998. The high limit thermostat is a manual reset disc-type thermostat set at 330º F and located near the burner. If the burner flame gets too hot, this thermostat will shut off the burner. This is generally caused by low airflow through the dryer. In a hi-limit situation the display will read "bURNER SAFETY FAIL" with an audio indication. The manual reset thermostat must be reset manually or the 24VAC burner circuit will never be complete. This will cause the phase 6 to continue to go off on "bURNER SAFETY FAIL" with an audio indication.





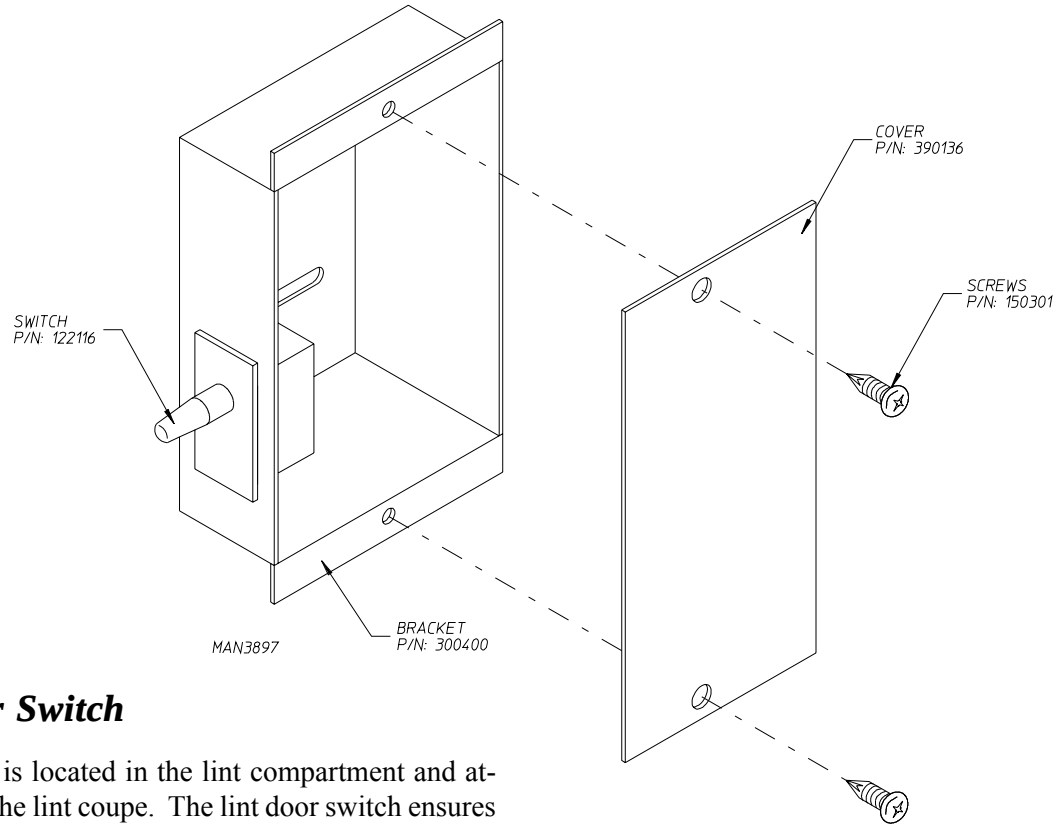
M. Automatic Reset Thermostat

This is located inside the dryer in the lint compartment above the lint screen. This thermostat senses the heated air after it passes through the basket. If the air temperature gets too hot, the thermostat will shut off the burner. The dryer will not run until the air temperature cools down. At this time, the thermostat will reset. Basket and blower will run but the dryer will not heat. If the temperature sensor opens the display will read TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" with an audio indication. If the thermostat opens the display will read "dRUM SAFETY FAIL" with an audio indication.



N. Lint Screen

The lint screen is located in the front of the dryer behind the lint door it is a non-removable framed screen which is screwed into the lint coupe. To clean the lint off the screen simply brush the screen clean. The lint screen must be kept clean in order for the dryer to operate properly and efficiently. Inspect the screen for tears and replace as needed.



O. Lint Drawer Switch

The lint door switch is located in the lint compartment and attached to the side of the lint coupe. The lint door switch ensures that the dryer will operate only when the lint door is completely closed. This is a safety device and should never be disabled.

SECTION V
Servicing

Introduction

ALL electrical and mechanical service or repairs ***should be*** made with the electrical power to the dryer disconnected (power off).

WARNING: PERSONAL INJURY COULD RESULT

The information provided in this section ***should not be*** misconstrued as a device for use by an untrained person making repairs. Service work ***should be*** performed by competent technicians in accordance with local, state, and federal codes. When contacting the factory for assistance, always have the dryer model and serial numbers available.

CAUTION: Observe ***ALL*** safety precautions displayed on the dryer or specified in this manual before and while making repairs.

Before considering replacement, make sure that ***ALL*** connectors are in place and making proper contact.

A. Computer Controls

To Replace Input/Output Board Reversing (Prior to February 11, 1998)

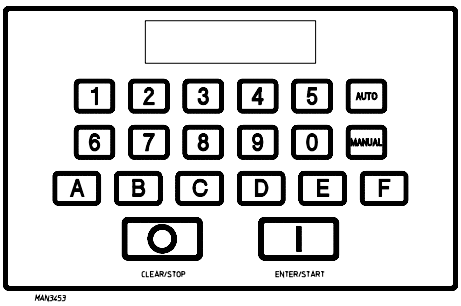
1. Discontinue power to the dryer.
2. Disconnect the nine (9) pin connector, six (6) pin connector, four (4) pin connector and a two (2) pin connector from the computer panel by squeezing the clip on the pin connector and pulling the plug away from the board.
3. Disconnect the green ground wire from the board
4. Disconnect the ribbon cable assembly from the input/output board reversing.
5. Remove the two (2) screws securing the input/output board to the sheet metal control panel. Remove the board by pulling the other two corners off the clinch studs.
6. Install new reversing input/output board by reversing this procedure.

To Replace Display Board

1. Discontinue power to the dryer.
2. Unplug keyboard ribbon from the rear of the computer.
3. Unplug ribbon cable assembly from the rear of the computer.
4. Remove the two (2) screws securing the computer to the computer box door. Remove the computer by pulling the other two corners off the clinch studs.
5. Install new display by reversing this procedure.

To Replace Computer Board

1. Disconnect power to dryer.
2. Unplug keyboard ribbon from rear of computer.
3. Unplug all wiring harnesses connected to the computer board.
4. Remove the two (2) screws securing the computer to the computer panel. Remove the computer by pulling the other two corners off the clinch studs.
5. Install new computer by reversing this procedure.

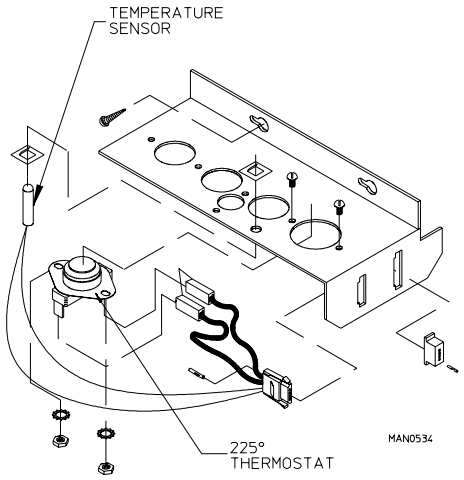


To Replace Keyboard Label Assembly

1. Discontinue power to dryer.
2. Unplug keyboard ribbon from rear of computer.
3. Slowly peel off and remove keyboard label assembly from control panel.
4. Peel paper backing off new keyboard label assembly.
5. Holding the new keyboard label assembly close to the panel, insert the keyboard ribbon through the rectangular slot in the control panel. Align label assembly into position by matching the red viewing window on the label to the rectangular cutout in the panel and gently press into place.
6. Connect keyboard ribbon to the computer.
7. Reestablish power to dryer.

To Replace Microprocessor Temperature Sensor Probe

1. Discontinue power to the dryer.
2. Open lint door.
3. Remove microprocessor sensor bracket assembly from dryer.
    a. Disconnect sensor bracket harness connector.
    b. Loosen the two (2) Phillips head screws which secure bracket assembly to dryer and remove bracket from dryer.



> ***NOTE:*** Do not remove screws.

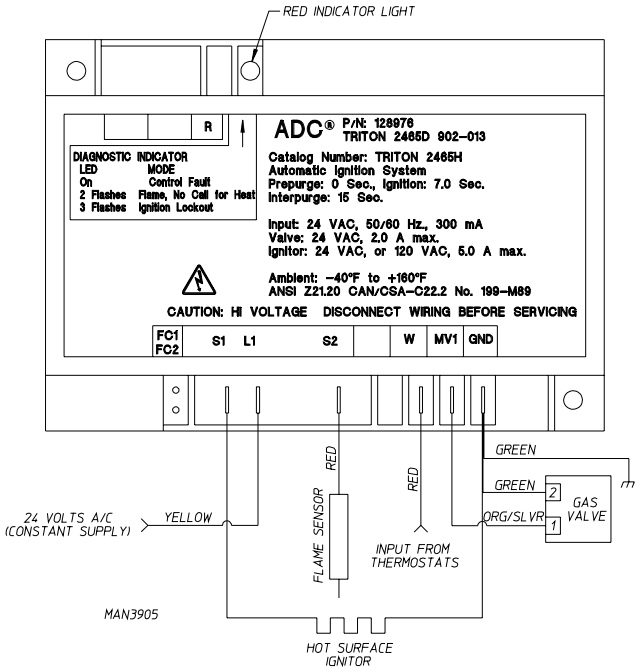
4. Disassemble sensor probe from bracket assembly by removing the top push-on fastener securing the probe from bracket. Use a small screwdriver to slowly pry the fastener off.
5. Disconnect the two (2) orange wires from the high heat (225º F) thermostat, and remove modular bracket connector, wires, and probe from bracket assembly.
6. Install new sensor probe assembly (ADC P/N 811710) by reversing procedure.
7. Reestablish power to the dryer.

> ***NOTE:*** If, when power is reestablished, the computer display reads "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE," check for a loose connection in the wiring.

B. Ignition Controls

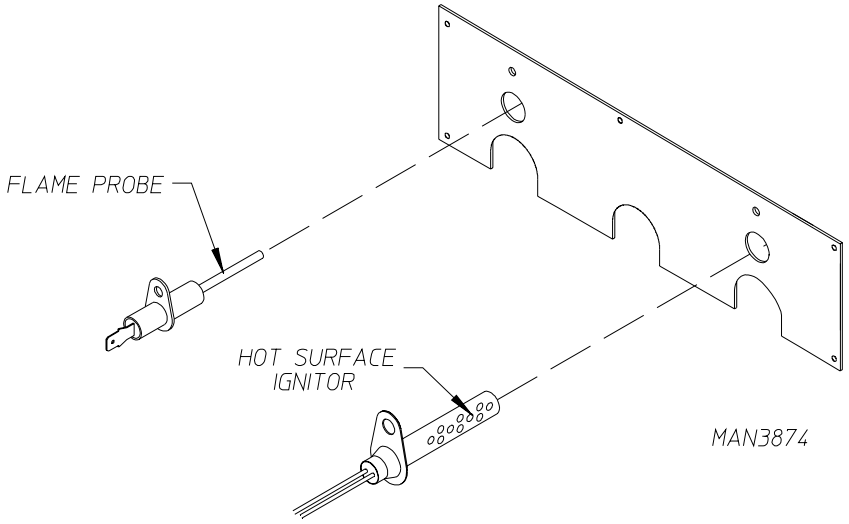
To Remove Hot Surface Ignitor (see burner illustration on page 10)

1. Discontinue power to dryer.
2. Disconnect wire from S1 and GND on the HSI module.
3. Disassemble ignitor from burner by removing the one (1) self tapping screw.
4. Reverse procedure for installation of new ignitor.



To Remove Flame Sensor Probe

1. Discontinue power to dryer.
2. Disconnect the red wire from the flame sensor probe which goes to S2 on the HSI module.
3. Disassemble flame sensor probe from burner by removing the one (1) self tapping screw.
4. Reverse procedure for installation of new flame sensor probe.



HSI Ignitor Flame Sensor Probe

NOTE: Before reestablishing power to dryer visually check the following (see illustration)

A. That the hot surface ignitor wires are connected to S1 and GND on the HSI module.

B. Do not wrap the hot surface ignitor wires and the flame electrode wire together. Improper operation may result. They may run alongside each other.

To Replace Gas Valve (See burner illustration on page 10)

1. Discontinue power to dryer.
2. Close shut-off valves in gas supply line.
3. Disconnect gas valve wiring.

NOTE: Identify location of each wire for correct reinstallation.

4. Break union connection before gas valve.
5. Loosen and remove four (4) screws securing pipe brackets to burner.
6. Remove valve and manifold assembly from dryer.
7. Remove valve mounting bracket, manifold and piping from gas valve.
8. Reverse procedure for installing new gas valve.

WARNING: Test all connections for leaks by brushing on a soapy water solution. NEVER TEST FOR LEAKS WITH A FLAME.

To Replace Main Burner Orifices

1. Refer to "To Replace Gas Valve" and follow steps 1 through 6.

2. Unscrew main burner orifices and replace.

NOTE: Use extreme care when removing and replacing orifices. These orifices are made of brass and are easily damaged.

3. Reverse the removal procedure for reinstalling.

NOTE: Test all connections for leaks by brushing on a soapy water solution. NEVER TEST FOR LEAKS WITH A FLAME.

To Test and Adjust Gas (Water Column) Pressure

There are two (2) types of devices commonly used to measure column pressure. They are spring and mechanical-type gauges and manometers. The spring and mechanical-type gauge is not recommended, because it is easily damaged and not always accurate. A manometer is simply a glass or transparent plastic tube with a scale in inches. When filled with water and pressure applied, the water in the tube rises showing the exact water column pressure.

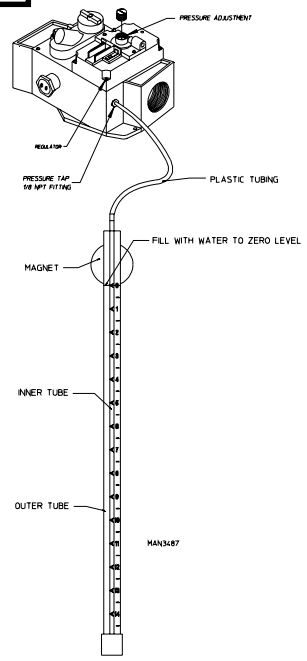
NOTE: Manometers are available from the factory by ordering ADC P/N 122804.

1. To test gas water column (W.C.) Pressure:

   a. Connect water column test gauge connection to gas valve pressure tap (1/8" NPT). This pressure tap is located on the outlet (manifold) side of the valve.

   b. Start dryer. With burner on, the correct water column reading in inches would be:
      Natural Gas - 3.5 Inches Water Column
      L.P. Gas - 10.5 Inches Water Column

2. To adjust water column pressure (natural gas only, L.P. gas must be regulated at source):



a. Remove the slotted vent cap on the top of the valve.

b. Turn the slotted adjustment screw located on the top of the valve next to the terminals. Turn clockwise to increase manifold pressure and counterclockwise to decrease.

NOTE: If correct W.C. pressure cannot be achieved, problems may be due to an undersized gas supply line, a faulty or underrated gas meter, etc.

To Convert Natural Gas to L.P. Gas

NOTE: All dryers are sold as natural gas, unless otherwise specified at the time the dryer order was placed. For L.P. gas the dryer must be converted as follows.

1. Refer to "Replace Gas Valve" and follow steps 1 through 6.

   A. For models with 3/4" White-Rodgers valve.
      1. Remove top vent cap.
      2. Insert spring and pin.
      3. Replace vent cap.

   2. Unscrew main burner orifices and replace with L.P. orifices.

NOTE: Use extreme care when removing orifices. They are made of brass and are easily damaged.

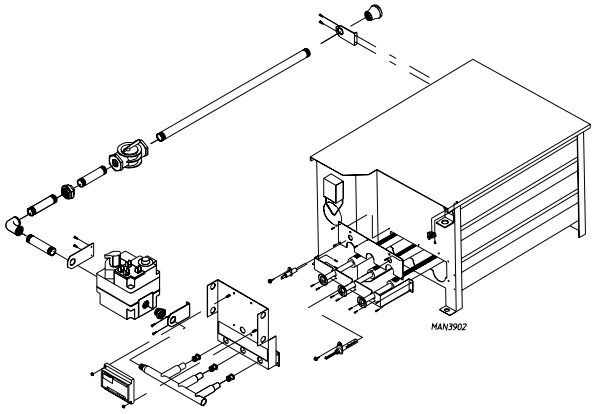
   3. Reverse the procedure for reinstalling valve assembly to the dryer.

WARNING: Test all connections for leaks by brushing a on soapy water solution. NEVER TEST FOR LEAKS WITH A FLAME.

NOTE: There is no regulator provided in an L.P. dryer. The column pressure must be regulated at the source (L.P. tank) or an external regulator must be added to each dryer.

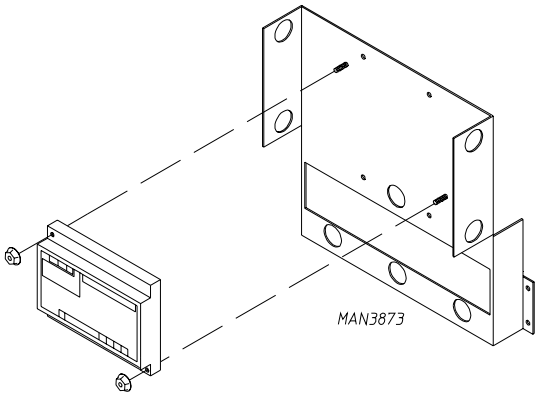
To Replace Burner Tubes

1. Refer to "Replace Gas Valve" and follow steps 1 through 6.
2. Remove four screws securing the HSI module mounting bracket.
3. Remove front flanges of the burner tubes to the burner tube rest.
4. Remove the screws securing the burner tube rest to the oven and remove this rest.
5. Remove screws securing burner box cover plate to the oven and remove the cover.
6. Remove burner tubes by sliding them out.
7. Replace by reversing procedure.



WARNING: Test all connections for leaks by brushing on a soapy water solution. NEVER TEST FOR LEAKS WITH A FLAME.

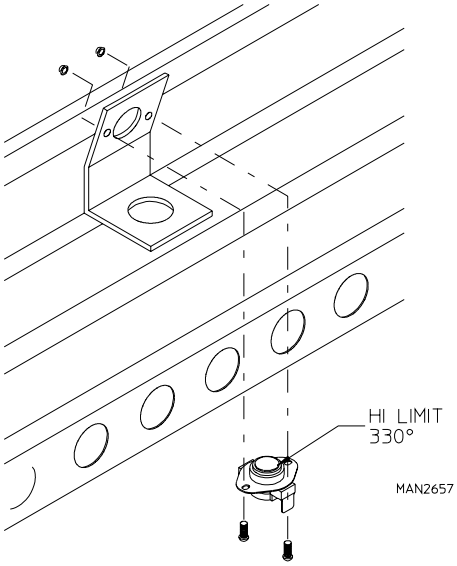
To Replace HSI Module



1. Discontinue power to the dryer.
2. Remove the wires connected to the terminal strip at the bottom of the module. (Mark correct location of each wire to aid in replacement on new module.)
3. Remove the four (4) pal nuts securing the module to the mounting bracket.
4. Replace module by reversing procedure.
5. Reestablish power to dryer.

C. Thermostats

To Replace Burner Hi-Limit Thermostat (Gas Models Only)



1. This thermostat is an important safety device as an added protection against failure of the air flow (sail switch) to open in the event of motor failure or reduced airflow conditions.

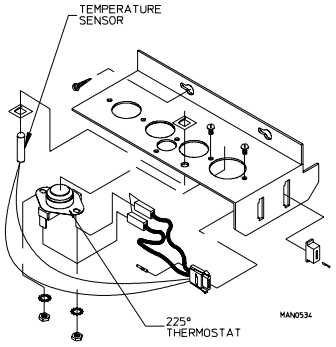
> ***IMPORTANT:*** Under no circumstances should heat circuit safety devices ever be disabled.

> ***NOTE:*** Models manufactured as of 1998 are equipped with a manual reset hi-limit thermostat.

1. Discontinue power to dryer.
2. Disconnect wires from hi-limit thermostat.
3. Remove the two (2) screws, washers and nuts securing thermostat to the bracket. Remove thermostat.
4. Reversing procedure for installing new thermostat.
5. Reestablish power to dryer.

To Replace Lint Compartment Hi-Heat Protector (225º) Thermostat

This thermostat is part of the "sensor bracket assembly" and is secured to the underside of the basket wrapper in the lint compartment. As a safety device, this thermostat will open (shut off) the heating unit circuit if an excessive temperature occurs. The dryer motor will remain on, even if the thermostat is open.



1. Disconnect power to dryer.
2. Open lint door.
3. Locate sensor bracket assembly and loosen the two (2) Phillips head screws securing bracket assembly to the tumbler wrapper.

> ***NOTE:*** Do not remove the screws.

4. Remove bracket assembly by slightly sliding bracket toward the rear of the dryer and to the left.

5. Disconnect sensor bracket harness connector and remove bracket assembly from dryer.

6. Disconnect the two (2) orange wires from the thermostat.

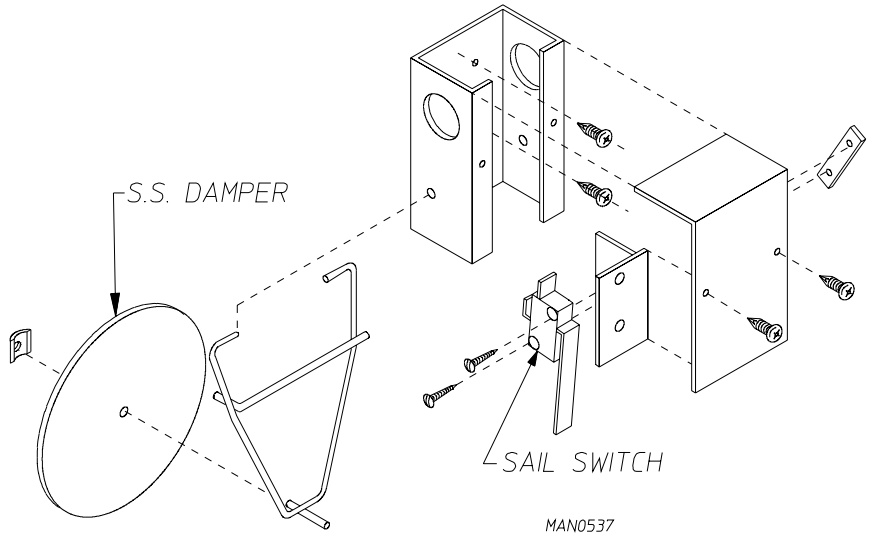
7. Disassemble thermostat from bracket assembly by removing the two (2) mounting screws, washers and nuts.

8. Reverse this procedure for installing a hi-heat protector thermostat.

9. Reestablish power to the dryer.

D. Sail Switch Assembly (Gas Models Only)

The sail switch is a heat circuit safety device which controls the burner circuit only. When the dryer is operating and there is proper airflow, the sail switch damper pulls in and closes the sail switch. Providing all the other heat-related circuits are functioning properly, ignition should now be established. If an improper airflow occurs, the sail switch damper will release, and the circuit will open.



To Replace Sail Switch

1. Discontinue power to dryer.

2. Remove the two (2) screws which hold the sail switch box cover to sail switch box.

3. Disconnect the two (2) wires from the switch.

4. Disassemble sail switch from mounting bracket by removing the two (2) screws securing switch in place.

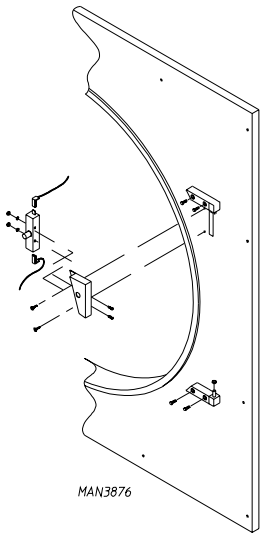
5. Reverse this procedure for installing new sail switch. Adjust sail switch described in the next section.

To Adjust Sail Switch

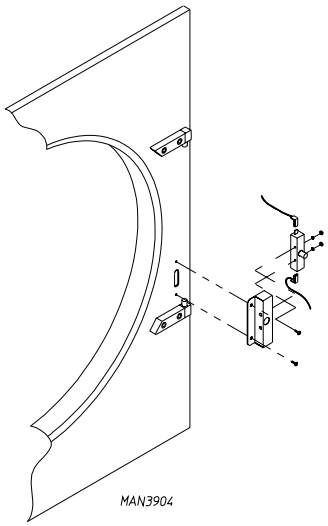
With the dryer operating at a high temperature setting, pull the sail switch away from the burner. The sail switch should open and extinguish the burner. Let the sail switch damper return to the burner wall. The sail switch should close to restart the burner ignition cycle. If the sail switch circuit does not operate as described, bend the actuator arm of the sail switch accordingly until proper operation is achieved. To check proper "open" position of sail switch, open main door, manually depress main door switch and start dryer. With the main door open and the dryer operating, the sail switch should be open, and the burner should not come on.

CAUTION: Do not abort this switch by taping or screwing sail switch damper to burner. PERSONAL INJURY OR FIRE COULD RESULT.

E. Front Panel and Main Door Assemblies



CURRENT PRODUCTION



PAST PRODUCTION

To Replace Main Door Switch

1. Discontinue power to dryer.
2. Open main door.
3. Remove the two (2) Phillips head screws holding the main door switch bracket assembly in place.
4. Disconnect wiring from switch assembly.
5. Reverse this procedure for installing new door switch assembly.
6. Reestablish power to dryer.

IMPORTANT: Under no circumstances should the door switch be disabled.

To Replace Main Door Assembly

1. Open main door.
2. Holding the door upward remove the two (2) screws from the top hinge block.
3. Lift the door up to remove.
4. Reverse this procedure for reinstalling new main door assembly.

To Install New Main Door Glass as of October 24, 1997

1. Remove main door assembly from dryer (follow main door removal procedure).
2. Lay main door on flat surface with the back of the door facing down.
3. Remove the four 10-32 acorn nuts securing the glass to the door.
4. Remove glass and clean all old sealant off main door. This area must be clean for correct bonding.
5. Place a bead of silicone around the edge door and lightly press glass into place.

IMPORTANT: Do not press hard or silicone thickness between the glass and door will be reduced, resulting in poor bonding.

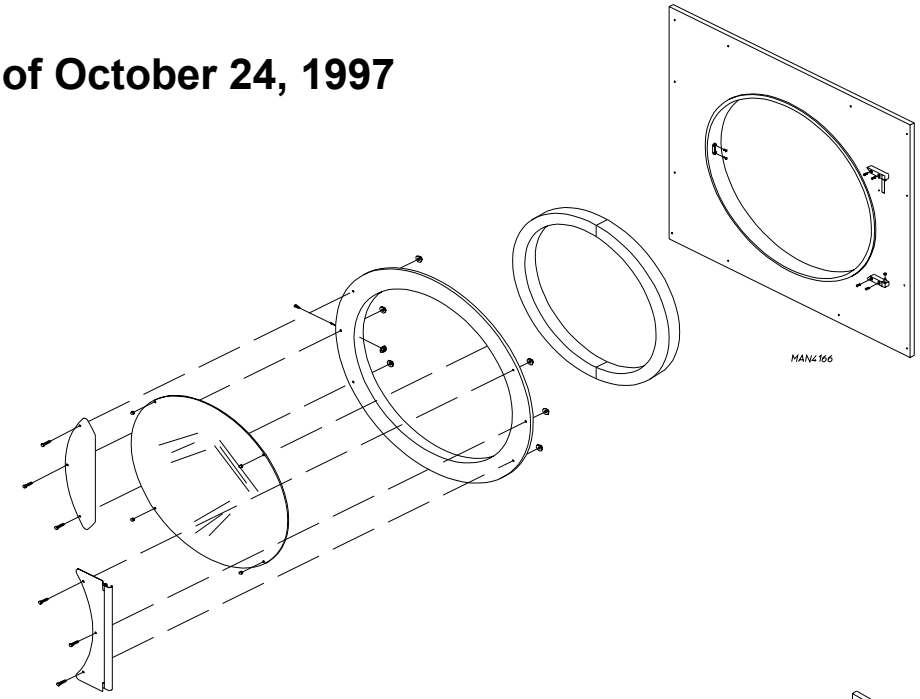
6. The door assembly should now be put in an area where it will not be disturbed for at least 24 hours. Depending on the conditions, the curing time of this adhesive is 24 to 36 hours.

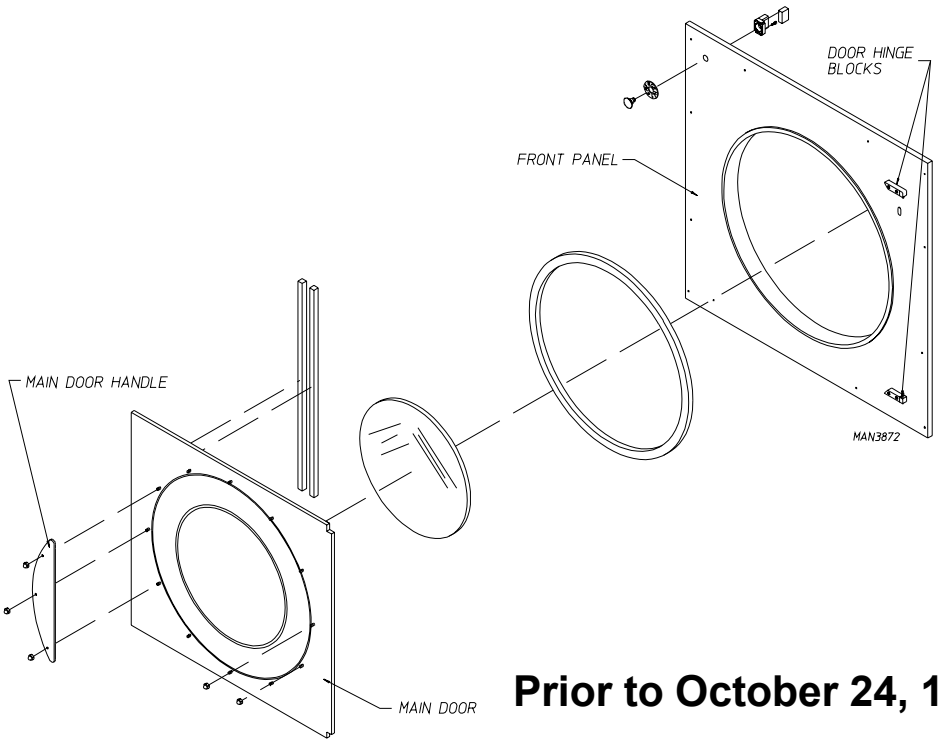
7. After 24-hour curing period, install main door on dryer by reversing step 1.

IMPORTANT: Do not press hard or silicone thickness between the glass and door will be reduced, resulting in poor bonding.

6. Reinstall the four 10-32 acorn nuts that where removed in step #3.

As of October 24, 1997





Prior to October 24, 1997

7. The door assembly should now be put in an area where it will not be disturbed for a few hours. This will give the silicone a chance to harden.

> ***NOTE:*** Once the silicone is cured you may want to trim any excess silicone on the inside of the main door assembly.

8. After the curing period install the main door on the dryer by reversing step no. 1.

To Install new Main Door Glass prior of October 24, 1997

1. Remove main door assembly from dryer (follow main door removal procedure).
2. Lay main door on flat surface with back of door face down.
3. Remove glass and clean all old sealant off main door. This area must be completely clean for correct bonding.
4. Apply a narrow bead of silicone (ADC P/N 170730) all around main door area where glass will rest.
5. Install glass onto door and adhesive. Slightly press glass into place.

> ***IMPORTANT:*** Do not press hard or silicone thickness between the glass and door will be reduced, resulting in poor bonding.

> ***NOTE:*** Once the silicone is cured you may want to trim any excess silicone on the inside of the main door assembly.

6. After the curing period install the main door on the dryer by reversing ***step #1.***

To Replace Front Panel

1. Discontinue power to dryer.
2. Remove bottom lint door assembly.
3. Disconnect the four emergency stop wires located in the front left electrical box.
4. Remove the front panel by removing the screws.

> **IMPORTANT:** When pulling the front panel off, the door switch harness in the upper right hand corner must be unplugged.

> **NOTE:** The main door assembly can be removed to make the panel removal easier. Refer to "replace main door assembly" directions.

5. Disconnect the emergency stop assembly from the old panel and reinstall on the new panel.
6. Disconnect other door switch wiring switch from the old panel and reinstall on the new front panel.
7. Reinstall the new front panel by reversing steps 1 through 3.
8. Reestablish power to dryer.

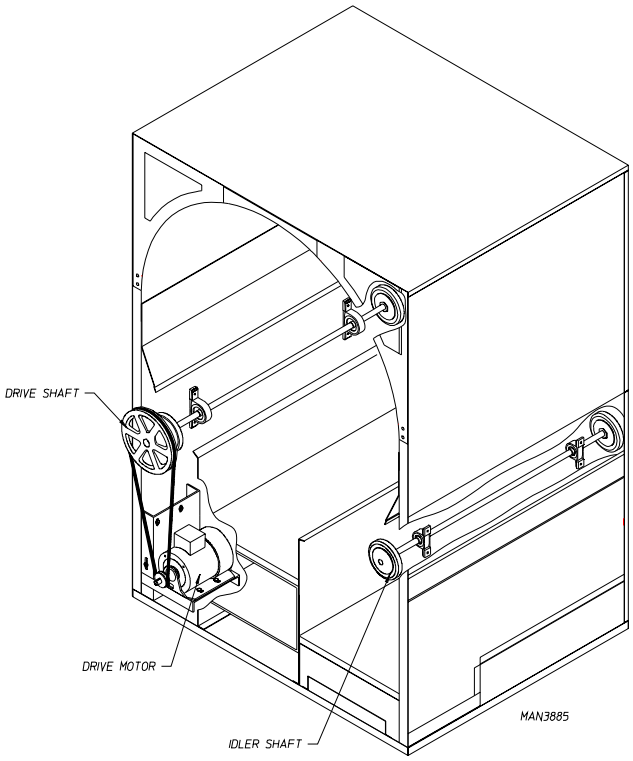
To Replace Main Door Hinge Block

1. Discontinue power to dryer.
2. Follow procedure for removal of main door assembly for top hinge removal.
3. Remove the two screws from the bottom hinge block.
4. Reassemble by reversing removal procedure.

5. Reestablish power to dryer.

F. Pulleys

To Replace Drive Shaft Pulley



1. Discontinue power to dryer.
2. Remove front panel from dryer (Follow front replacement directions on page 27.)
3. Loosen v-belts. Rotate pulley and roll v-belts out of grooves.
4. Remove set screw from the 9" pulley.
5. Remove pulley and key.

> **NOTE:** A gear puller may be required to remove pulley.

6. Reverse this procedure for replacement.

> **NOTE:** Pulley must be aligned for proper operation.

To Replace Drive Motor Pulley

1. Discontinue power to dryer.
2. Remove front panel from the dryer. Follow front panel replacement directions on page 27.
3. Loosen v-belts. Rotate pulley and roll v-belt out of groove.
4. Remove set screw from the drive motor pulley.
5. Remove pulley and key.

> **NOTE:** A gear puller may be required to remove pulley.

6. Reverse this procedure for replacement.

> **NOTE:** Pulleys must be aligned for proper operation.

Tumbler Wheel Replacement on Drive Assembly (taper lock models)

1. Discontinue power to dryer.
2. Remove front panel from dryer. (Follow front panel replacement directions on page 27.)
3. Remove the ten (10) 1/4-20 x 1/4" socket button head screws from the perfed basket side.
4. Remove wrapper assembly.
5. Loosen v-belts. Rotate pulley and v-belts out of the groove.
6. Block the basket (tumbler) assembly in position.
7. Mark the position of pillow block bearing then remove the bolts from the pillow block bearings.
8. Remove the drive shaft assembly through the front of the machine.
9. Remove the set screw from the 9" pulley.

10. Remove the pulley and key.

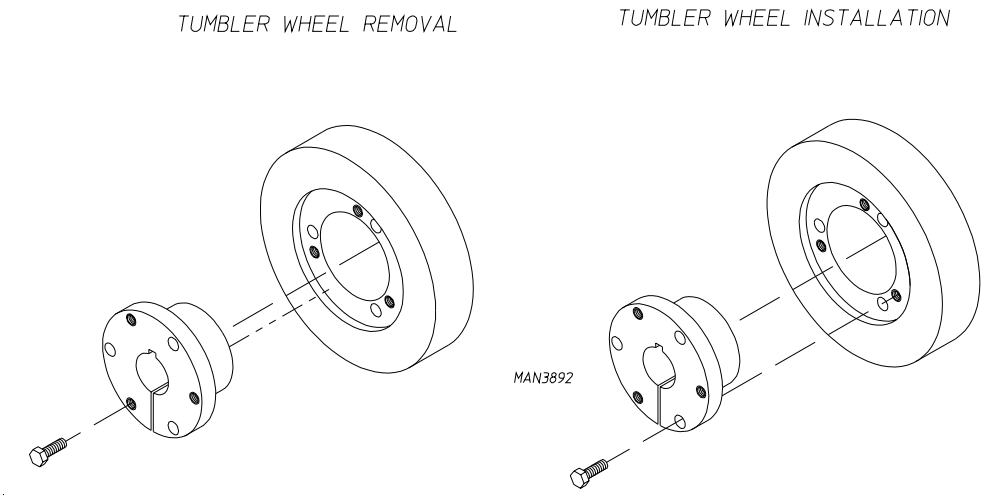
NOTE: A gear pulley may be required to remove the pulley.

11. Remove cap screws from bushing.

12. Insert cap screws in the tapped removal holes and tighten evenly until bushing becomes loose on shaft.

13. Remove the bushing, tumbler wheel and key.

14. Reverse this procedure for replacement.



IMPORTANT: Tighten screws evenly and progressively. Never allow the sheave to be drawn in contact with the flange of the bushing. This gap should measure from 1/8" to 1/4". Proper cap screw torque is 30 ft-lbs. If greater tightening forces are applied, excess pressure will be created in the hub of the mounted sheave which may cause it to crack.

Tumbler Wheel Replacement on Drive Assembly (transtorque models)

1. Discontinue power to dryer.
2. Remove front panel from the dryer. (Follow front panel replacement directions on page 27.)
3. Remove the ten (10) 1/4-20 x 1/4" socket button head screws from the perfed basket side.
4. Remove wrapper assembly.
5. Loosen v-belts. Rotate pulley and v-belts out of groove on the pulley. For a more detailed description, follow steps replacement of drive belt.
6. Block the basket (tumbler) assembly in position.
7. Mark the position of the pillow block bearings, then remove the bolts from the pillow block bearings.
8. Remove the drive shaft assembly through the front of the machine.
9. Remove the set screw from the 9" pulley.
10. Remove the pulley and key.

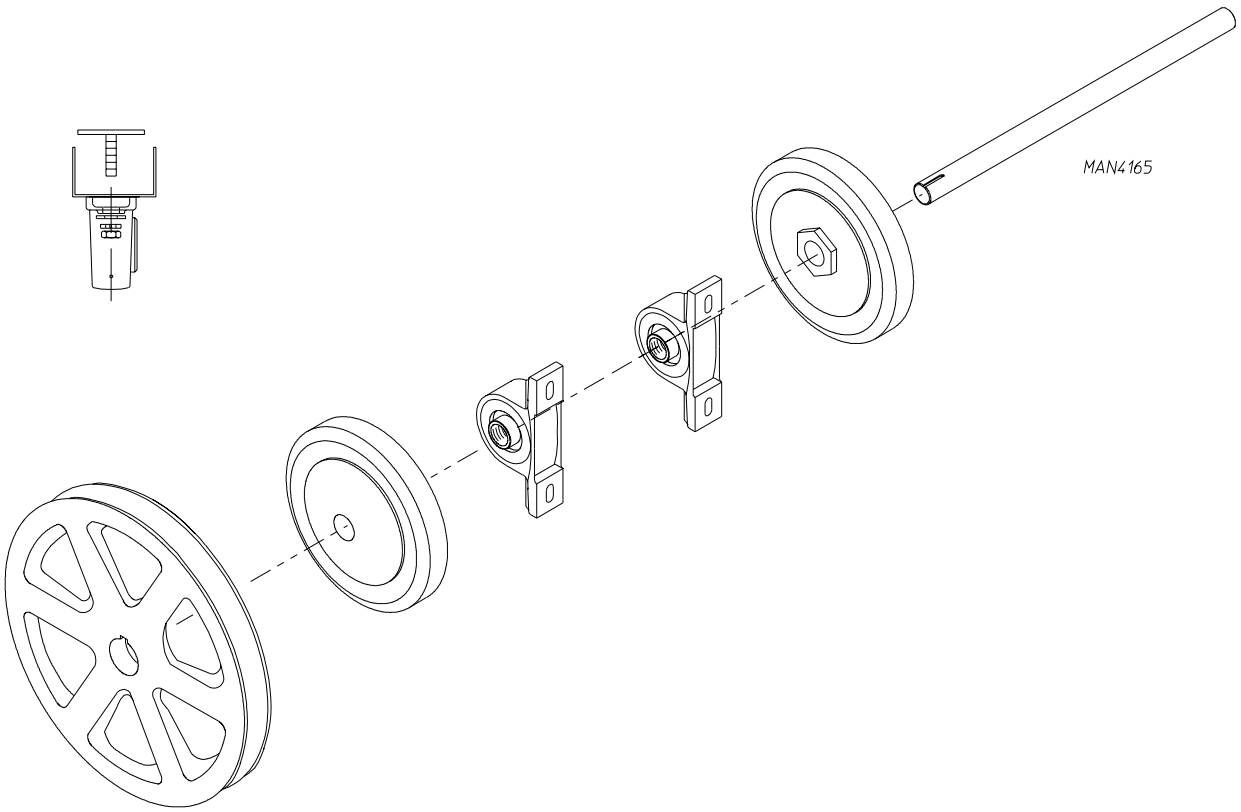
NOTE: A gear pulley may be required to remove the pulley.

11. Remove the transtorque from the wheel assembly.

NOTE: One wrench must be on the transtorque and one on the axle. The wrench on the transtorque should have pressure applied in a counterclockwise direction.

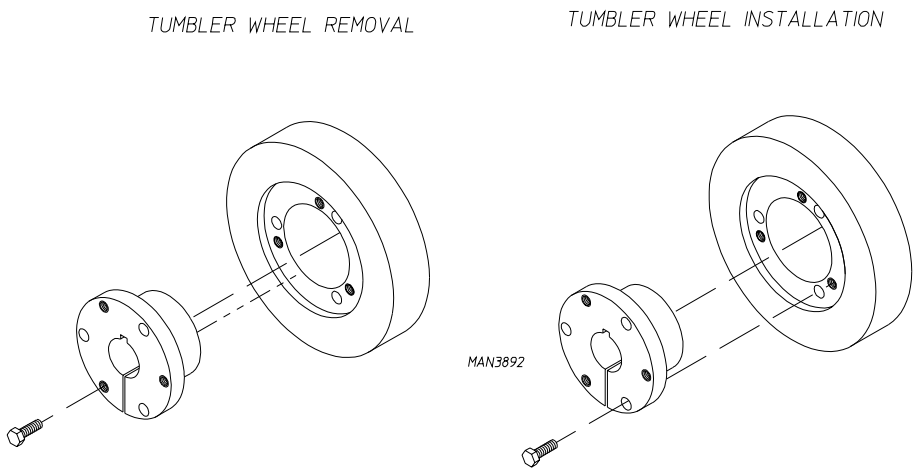
12. Remove the bushing trantorque and tumbler wheel.

13. Reverse these procedures for replacement.



Tumbler Wheel Replacement on Idler Assembly (taper lock models)

1. Disconnect power to the dryer.
2. Remove the front panel from the dryer. (Follow front panel replacement directions on page 27.)
3. Remove the ten (10) 1/4-20 x 1/4" socket button head screws from the perfed basket side.
4. Remove the wrapper assembly.
5. Block the basket tumbler assembly in position.
6. Mark the position of the pillow block bearings. Then remove the bolts from the pillow block bearing.
7. Remove the idler shaft assembly through the front of the machine.
8. Remove the cap screws from bushing.
9. Insert cap screws in the tapped removal holes and tighten evenly until bushing becomes loose on shaft.
10. Remove the bushing, tumble wheel and key.
11. Reverse this procedure for replacement.



IMPORTANT: Tighten screws evenly and progressively. Never allow the sheave to be drawn in contact with the flange of the bushing. This gap should measure from 1/8" to 1/4". Proper cap screw torque is 30 ft-lbs. If greater tightening forces are applied, excess pressures will be created in the hub of the mounted sheave which may cause it to crack.

Tumbler Wheel Replacement on Idler Assembly (trantorque models)

1. Discontinue power to the dryer.
2. Remove the front panel form the dryer. (Follow front panel replacement directions on page 27.)
3. Remove the ten (10) 1/4-20 x 1/4" socket button head screws from the perforated basket side.
4. Remove the wrapper assembly.
5. Block the basket (tumbler) assembly in position.
6. Mark the position of the pillow block bearings. Then remove the bolts from the pillow block bearings.
7. Remove the idler shaft assembly through the front of the machine.
8. Remove the transtorque from the wheel assembly.

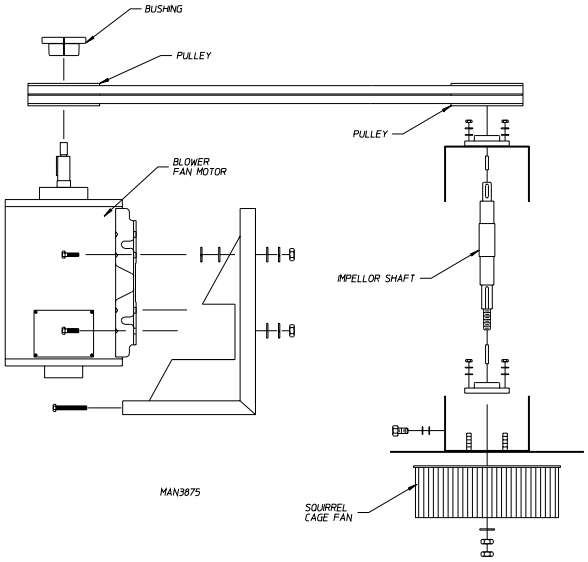
NOTE: One wrench must be on the transtorque and one on the axle. The wrench on the transtorque should have pressure applied in a counterclockwise direction.

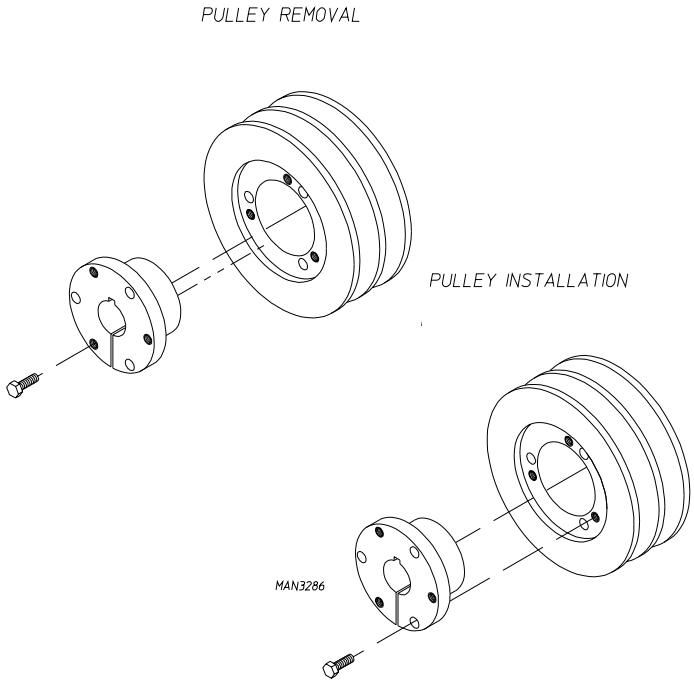
9. Remove the bushing (transtorque) and tumbler wheel.
10. Reverse these procedures for replacement.

To Replace Blower Shaft Pulley

1. Discontinue power to the dryer.
2. Remove the ten (10) 1/4-20 x 1/4" socket button head screws from the perforated basket side and remove the basket panel.
3. Remove the inside right wrapper.
4. Loosen v-belts. Rotate pulley and roll v-belts out of the groove.
5. Remove cap screw from bushing.
6. Insert cap screws in tapped removal holes and tighten evenly until bushing becomes loose on shaft.
7. Remove bushing, pulley and key.
8. Reverse this procedure for replacement.

IMPORTANT: Tighten screws evenly and progressively. Never allow the sheave to be drawn in contact with the flange of the bushing. This gap should measure from 1/8" to 1/4". Proper cap screw torque is 30 ft-lbs. If greater tightening forces are applied, excess pressures will be created in the hub of the mounted sheave which may cause it to crack.





To Replace Blower Motor Pulley

1. Discontinue power to the dryer.
2. Remove the ten (10) 1/4 - 20 x 1/4" socket button head screws from the perforated basket side and remove the basket panel.
3. Remove the inside right wrapper.
4. Loosen v-belts, rotate pulley and roll v-belts out of groove.
5. Remove cap screws from the bushings.
6. Insert cap screws in tapped removal holes and tighten evenly until bushing becomes loose on shaft.
7. Remove bushing, pulley and key.
8. Reverse this procedure for replacement.

IMPORTANT: Tighten screws evenly and progressively. Never allow the sheave to be drawn in contact with the flange of the bushing. This gap should measure from 1/8" to 1/4". Proper cap screw torque is 30 ft-lbs. If greater tightening forces are applied, excess pressures will be created in the hub of the mounted sheave which may cause it to crack.

Basket Assembly

NOTE: Dryer must be level prior to basket alignment.

1. Discontinue power to the dryer.
2. Remove the perforated basket (tumbler) panel.
3. Remove wrapper panel to access the drive and idler shaft.

4. Place a level on the shafts to verify if level.
5. Measure distance between basket and wrapper 1/2" to 3/4" gap should be derived.
6. Loosen the 8 bolts on the pillow block bearings and turn the adjustment screw clockwise or counterclockwise to increase or decrease the gap between the basket and wrapper.
7. Measure the length of the adjustment bolts and all should be equal.
8. Place a level on the shaft to verify it is level if any adjustment has been made.
9. Check the basket drive belt for proper tension. Adjust if necessary.
10. Replace the wrapper panels.
11. Replace the perforated basket (tumbler) panel.

To Replace Idler Shaft Pillow Block Bearing

1. Refer to tumbler wheel replacement on idler assembly **page 30.**
2. Complete steps 1 through 11.
3. Remove both set screws from each pillow block bearing.
4. Remove pillow block bearing from shaft.
5. Reverse this procedure for replacement.

> **NOTE:** Once the shaft assembly has been installed into dryer. Return pillow block bearings to the marked position and tighten set screws.

6. Refer to basket assembly section **page 32** for shaft and basket alignment.

To Replace Drive Assembly Pillow Block Bearing

1. Refer to tumbler wheel replacement on drive assembly **page 28.**
2. Complete steps 1 through 14.
3. Remove both set screws from each pillow block bearing.
4. Remove pillow block bearings from shaft.
5. Reverse this procedure for replacement.

> **NOTE:** Once the shaft assembly has been installed into dryer. Return pillow block bearing to the marked position and tighten set screws.

6. Refer to basket assembly section **page 32** for shaft and basket alignment.

V-belt Adjustment (Motor to Drive Axle)

1. Discontinue power to dryer.
2. Remove front panel. Follow front panel replacement directions on page 27.
3. Loosen the four (4) bolts holding the drive motor mount to the side of the dryer.
4. Loosen the jam nuts on the adjustment screw on the top of the motor mount.
5. Turn the adjustment screw to lower the motor mount (to tighten the belts) or raise the motor mount (to loosen the belts.)
6. Check the vertical plane of the motor and idler pulleys for parallel adjustment.
7. If realignment is required, loosen motor pulley and bushing, and move motor pulley to proper position.

8. Retighten motor mount bolts and jam nuts.
9. Assemble front panel lint door assemblies back to dryer.
10. Reestablish power to dryer.

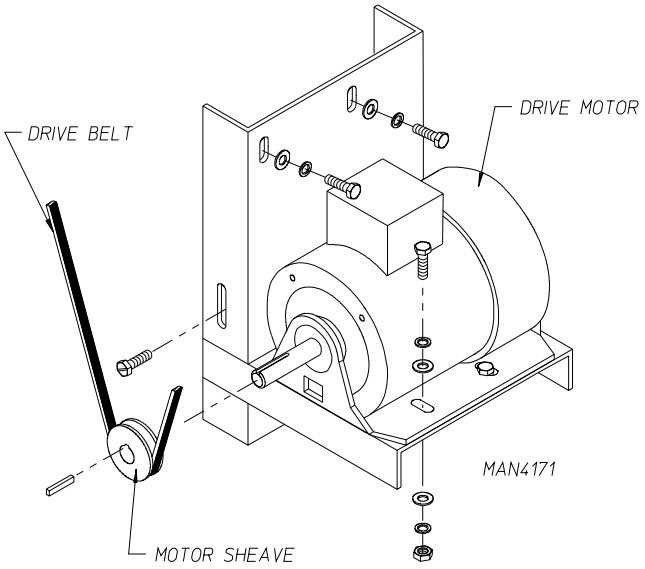
To Replace Drive Motor V-Belts

1. Discontinue power to the dryer.
2. Remove front panel. Follow front panel replacement instructions on page 27.
3. Loosen tension on v-belt so that it can easily be rolled off pulley. This can be done by loosening the four bolts holding the motor to the side of the dryer. As well as the adjustment bolt on top.
4. Replace v-belt.
5. Retighten v-belt and adjust tension and alignment per previous instructions.

J. Motors

To Replace Drive Motor

1. Discontinue power to dryer.
2. Remove front panel from dryer. Follow front panel replacement instructions on page 27.
3. Remove drive belt.
4. Disconnect wiring harness from motor.
5. Remove bolts holding motor to mount and replace with new motor. Do not tighten bolts.
6. Remove pulley from old motor and install on new motor. By removing the set screw from the drive motor pulley.



NOTE: A gear puller may be required to remove pulley.

7. Align motor pulley with drive assembly pulley and tighten set screw holding motor pulley.
8. Replace belts and adjust belt tension.
9. Retighten bolts.
10. Reestablish power to dryer.

To Replace Impeller Motor (Fan Shaft Drive)

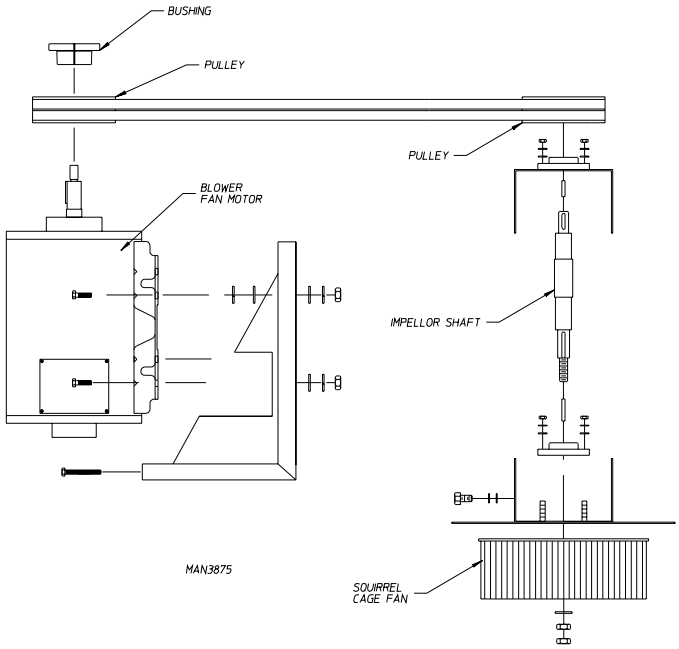
1. Discontinue power to the dryer.
2. Remove lint door and front panel from dryer.
3. Remove the perforated panel inside the basket (tumbler).
4. Remove the wrapper assembly under the basket.

5. Loosen the tension on the blower motor v-belts by loosening the jam nuts and then the adjustment bolt.
6. Remove the bolts securing the motor mount assembly to the dryer cabinet and remove the motor mount assembly from the dryer.

> **NOTE:** The motor mount assembly will not be able to be removed to far due the wiring harness still connected.

7. Disconnect the wiring harness from motor.
8. Remove motor pulley from old motor and install on new motor.

> **NOTE:** Be sure to take measurements of the pulley location on the old motor and in this way the belt will be aligned.



9. Remove the old motor from the motor mount and install the new motor on the mount.
10. Reconnect the wiring harness to the motor.
11. Install motor mount assembly back into the dryer and replace bolts into proper holes finger tight.
12. Replace belts and adjust belt tension.

> **NOTE:** Be sure that the belt alignment is still proper.

13. Retighten bolts
14. Reestablish power to dryer.

To Replace Blower Motor V-belts

1. Remove the ten (10) 1/4 - 20 x 1/4" socket button head screws from the perforated basket side and remove the basket panel.
2. Remove the right side wrapper.
3. Remove the blower motor belt by loosening the 3/8" bolt with locking nuts.
4. Reinstall new belts by reversing steps 1 though 3.

To Replace Front Thruster Wheels

1. Discontinue power to the dryer.

2. Remove the front panel. Follow front panel removal instructions on **page 27** for removal.
3. Remove thruster wheel assembly.
4. Remove the wheel from thruster wheel bracket.
5. Reverse steps 1 through 5 for installing the new thruster wheel.

To Replace Rear Thruster Wheels on Bolted Brackets Front Access

1. Discontinue power to the dryer.
2. Remove the front panel. Follow front panel removal instructions on **page 27.**
3. Remove the two (2) front thruster wheel brackets.
4. Remove the basket (tumbler) from the dryer.

> **IMPORTANT:** Be careful of the rotational sensor located underneath the basket. I the basket hits this sensor it will break. You may want to remove this sensor first.

5. Remove the rear thruster wheels.
6. Reverse steps 1 through 6 for installation of the new thruster wheels.

Rear Access

1. Discontinue power to the dryer.
2. Remove thruster wheel cover.
3. Remove the two (2) bolts securing the thruster wheel bracket to the rear of the machine.
4. Remove the nut securing the thruster wheel to the bracket and remove the thruster wheel.
5. Reverse steps 1 through 4 for installation of the new thruster wheel.

To Replace Rear Thruster Wheels on Welded Thruster Wheel Bracket Models

1. Discontinue power to the dryer.
2. Remove the front panel. Follow front panel removal instruction on **page 27.**
3. Remove the two (2) front thruster wheel brackets.
4. Remove the basket (tumbler) from the dryer.

> **IMPORTANT:** Be careful of the rotational sensor located underneath the basket. If the basket hits this sensor, it will break. You may want to remove this sensor for extra caution.

5. Remove the rear thruster wheels.
6. Reverse steps 1 through 6 for installation of the new thruster wheels.

K. Impeller

1. Discontinue power the dryer.
2. Remove the perforated basket (tumbler) panel.
3. Remove right wrapper assembly.
4. Remove v-belts from blower motor and impeller assembly.

5. Remove the four (4) nuts mounting the impeller assembly to the blower housing.
6. Remove the two (2) set screws and two (2) left hand jam nuts that hold the impeller on the shaft.
7. Remove the impeller, washers and key.
8. Reverse this procedure and reestablish power to the machine.

L. Lint Screen Assembly

To Replace Lint Screen

1. Discontinue power to the dryer.
2. Open lint door.
3. Remove lint screen by removing the screws from the lint screen frame.

> ***NOTE:*** It may be easier to remove a perforated basket panel for easier access to the lint screen screws.

4. Replace lint screen and secure frame to the lint coupe.
5. Close lint door.

To Replace Lint Door Switch

1. Disconnect power to dryer.
2. Remove lint door panel.
3. Disconnect both 4-pin connectors at the rear of the lint switch cover.
4. Remove the two (2) screws holding the lint switch cover on.
5. Remove lint switch cover and disconnect the two (2) terminals of the switch.
6. Remove switch by pressing tabs together and pushing switch out.
7. Install new switch by reversing these procedures.

SECTION VI

Troubleshooting

The information provided will help isolate the most probable components associated with the difficulty described. The experienced technician realizes that a loose connection or broken or shorted wire may be at fault where electrical components are concerned -- not necessarily the suspected component itself.

ELECTRICAL PARTS SHOULD ALWAYS BE CHECKED FOR FAILURE BEFORE BEING RETURNED TO THE FACTORY.

The information provided should not be misconstrued as a device for use by an untrained person in making repairs. Only properly licensed technicians should service the equipment.

OBSERVE ALL SAFETY PRECAUTIONS DISPLAYED ON THE EQUIPMENT OR SPECIFIED IN THIS MANUAL WHILE MAKING REPAIRS.

Refer to section "Electrical Troubleshooting" for a detailed troubleshooting procedure for electrical components.

1. No display on computer.

A. Open circuit breaker switch or blown fuse.

B. Tripped blower motor overload.

C. Bad wiring connection.

D. Bad transformer.

E. Emergency stop button is depressed.

F. Faulty microprocessor (computer controller).

2. Computer will not accept key pad entries.

A. Key pad ribbon is not plugged into computer securely.

B. Faulty keypad.

C. Faulty microprocessor (computer controller).

3. Dryer will not start, but computer display indictors are on.

A. Failed contactors.

B. Failed arc suppressor (A.S.) board

C. Failed microprocessor (computer).

D. Failed motors.

4. Drive motor runs, burner is on, but basket will not turn.

A. Broken, damaged or loose v-belt.

B. Belts contaminated (oil, grease, etc.).

C. Loose or broken pulley.

5. Dryer operates but is taking too long to dry.

A. Improperly programmed microprocessor.

B. An inadequate exhaust duct work system.

C. Restriction in exhaust system.

D. Insufficient makeup air.

E. Poor housekeeping. Dirty or clogged lint screen.

F. Washing machine extractors are not performing properly.

G. An exceptionally cold/humid or low barometric pressure atmosphere.

H. The supply gas may have a low heating valve, check with local gas supplier.

I. Failed temperature sensor (temperature calibration is incorrect).

J. Failed microprocessor (computer) controller.

9. Thermal overload for drive motor is tripping.

A. Either an exceptionally low or high voltage supply.

B. Motor bearing failure.

C. Motor vents are blocked with lint.

D. Failed motor.

E. Failed overload.

F. Out of balance impeller (fan).

G. Insufficient makeup air.

10. Overload for impeller (fan) motor is tripping.

A. Either an exceptionally low or high voltage supply.

B. Motor bearing failure.

C. Motor vents are blocked with lint.

D. Failed motor.

E. Failed overload.

F. Insufficient makeup air.

11. Burner hi-limit safety thermostat is tripping.

A. Insufficient exhaust duct work, size or restriction in exhaust system.

B. Insufficient makeup air.

C. Lint screen needs cleaning.

D. Damaged impeller.

> ***NOTE:*** For models with the manual reset hi-limit thermostat see ***page 23***.

12. Display reads "Temp Sensor Failure Check Temp Sensor Fuse." Dyer Sensor Circuit Failure.

A. Check 1/8 amp fuse on computer.

B. Faulty microprocessor temperature sensor probe.

C. Open circuit in either one of two (2) wires leading from the sensor probe to the computer

1. Connection at sensor bracket assembly connector.
2. Connection at computer harness connector.

D. Faulty microprocessor (computer) controller.

13. Dryer does not start. Display reads "main door" or "lint door" with an audio indication.

A. Main door is open.

B. Lint drawer is open.

C. Faulty main door or lint door switch.

D. Open circuit in either main door or lint drawer switch harnesses.

E. Faulty 24 V transformer

14. There is excessive vibration coming from the basket.

A. Basket is out of adjustment.

B. Drive shaft or idler shaft is out of alignment.

C. Bad pillow block bearing.

D. Bad tumbler wheel.

E. Drive motor and shaft not aligned.

F. Bad retaining wheel.

SECTION VII

PHASE 6 OPL SYSTEM DIAGNOSTICS

> ***IMPORTANT:*** You must disconnect and lock out electric, gas or steam supply before any covers or guards are removed from the machine to allow access for cleaning, adjusting, installation or testing of any equipment per OSHA (Occupational Safety and Health Administration) standards.

ALL major circuits, including door, microprocessor temperature sensor, heat and motor circuits are monitored. The Phase 6 OPL microprocessor controller (computer) will inform the user, via the L.E.D. display of certain failure codes, along with indicators both in L.E.D. display and at the output of each relay (and door switch circuit) to easily identify failures.

A. DIAGNOSTIC (L.E.D. DISPLAY) FAILURE CODES

1. ***SAIL SWITCH FAIL-*** This routine will prevent start up on the machine unless the sail switch is in the correct position. If the sail switch is closed prior to start up the display will read "SAIL SWITCH FAIL" along with an audio indication.

2. ***No AIR FLOW-*** If the sail switch opens during cycle operation the display will read "No AIR FLOW" along with an audio indication. The machine will continue to run with no heat for three (3) minutes or until the temperature drops below 100º F. Upon failure the machine will shut down and display "No AIR FLOW" with an audio indication.

3. ***bURNER SAFETY FAIL-*** Routine monitors the temperature above the burner. If the Burner Hi-Limit switch opens the display will read "bURNER SAFETY FAIL." The machine will run with no heat for three (3) minutes or until the temperature drops below 100º F. Upon failure the machine will shut down and display "bURNER SAFETY FAIL" with an audio indication.

4. ***dRUM SAFETY FAIL-*** This routine monitors the tumbler temperature if the tumbler Hi-Limit switch opens prior or during the cycle while the heat was on the machine will display "dRUM SAFETY FAIL." The machine will continue to run with no heat for three (3) minutes or until the temperature drops below 100º F. Upon failure the machine will shut down and display "dRUM SAFETY FAIL" with an audio indication.

5. ***No HEAT-*** This routine monitors the burner ignition. If the burner mis-ignites (does not light) the HSI (hot surface ignition) module will check to see of the microprocessor program has any retries left. The standard retry count is two (2). If the module notices that there are retries left it will purge for one (1) minute then try to ignite the burner again. The HSI module will try this for a total of three (3) times or until there are no retries left. If the burner does not ignite after three attempts the L.E.D. display will display the error code "no heat" with an audio indication. When this occurs the machine will run with no heat for three (3) minutes or until the temperature drops below 100º F.

> ***IMPORTANT:*** For other countries, such as Australia, the retry count may not apply due to local approvals.

6. ***bURNER CONTROL FAIL-*** This routine monitors the ignition control's gas valve output response. If the valve output signal is not present from the ignition control within the valve time limits the Phase 6 microprocessor controller (computer) determines the ignition control has failed. If this occurs when the cycle is active the machine will display "bURNER CONTROL FAIL." If the tumbler temperature is above 100º F the machine will continue to display "bURNER CONTROL FAIL." The machine will run with no heat for three (3) minutes or until the temperature drops below 100º F. If the tumbler temperature is below 100º F upon failure the machine will shut down and display "bURNER CONTROL FAIL" with an audio indication.

7. ***bURNER FLAME FAIL-*** This routine allows two (2) Flame out retries to occur before proceeding into the error. The count of two (2) will be established every time the call for heat was to occur. Only if it reaches the count of two (2) before the tumbler temperature has reached the set temperature will this error be triggered. The machine will run with no heat for three (3) minutes or until the temperature drops below 100º F. If the tumbler temperature is below 100º F upon failure, the machine will shut down and display "bURNER FLAME FAIL" with an audio indication. This process will occur every time the heat output is active.

8. ***MAIN DOOR-*** This monitors the door circuit. If the machine was not active and the main door was opened the display would read "REAdY." If a program attempt was made with the main doors open the display will read "MAIN dOOR" with an audio indication. If the machine is active and the main door was opened the display would read "MAIN dOOR" with no audio indication and the dryer will shut down. Once the main door has closed the display would read "PRESS START" press the "ENTER/START" key and it will continue the programmed cycle.

9. ***LINT dOOR-*** This monitors the lint drawer and door circuit. If the machine was not active and the lint drawer and door was opened the display would read "REAdY." If a program attempt was made with the lint drawer and door open the display would read "LINT dOOR" with an audio indication. If the machine is active and the lint drawer and door was opened the display would read "LINT dOOR" with no audio indication and the dryer will shut down. Once the lint door was closed the display would read "PRESS START" press the "ENTER/START" key and it will continue the programmed cycle.

10. ***TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE-*** This routine monitors the tumbler temperature. When the temperature sensor or fuse opens with the machine not active the display will read "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" with an audio indication. If the machine was active at the time that the temperature sensor or fuse opened the display would read 'TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE." If the tumbler temperature is above 100º F the machine will continue to display "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" with an audio indication and run with no heat for three (3) minutes or until the temperature drops below 100º F. If the tumbler temperature is below 100º F upon failure the machine will shut down and display "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" with an audio indication. The display will continue to read "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" an audio indication will sound for approximately 5 seconds, every 30 seconds until the problem is corrected or the power to the dryer is disconnected (and the problem is corrected).

> ***NOTE:*** Once the Phase 6 microprocessor controller (computer) detects a problem in the heat circuit, it updates every 30 seconds, so that if the problem was a loose connection in the circuit which corrected itself, the "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" condition would automatically be cancelled and the display will return to "REAdY."

11. ***ROTATE SENSOR FAIL-*** Indicates a rotational sensor circuit failure meaning that there is a fault somewhere in the basket (tumbler) rotating circuit, or the Phase 6 OPL microprocessor controller (computer) program related to this circuit (program location 2) is set incorrectly. In the active mode it should be (ROTATE SENSOR ACTIVE), if the dryer is not equipped with the optional rotational sensor it should be set in the nonactive mode (No ROTATE SENSOR).

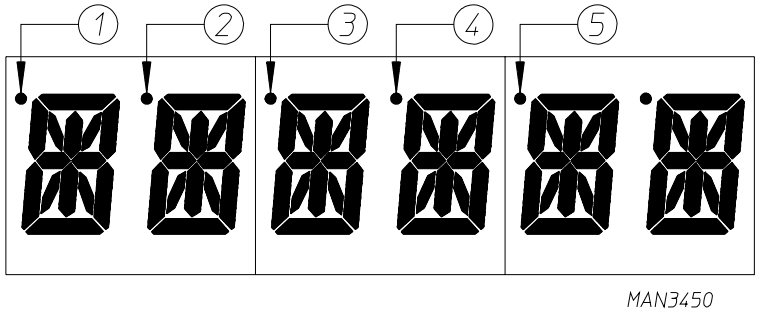
NOTE: RPM- This routine monitors the timing response from the existing rotational sensor input and derives a RPM measurement. To display this RPM measurement (press the "ENTER/START" key once and release, then press the "ENTER/START" key a second time and hold. This will display the RPM measurement). The rotational sensor must be active for operation of this feature.

12. ***CHECK MAIN FUSE-*** Indicates that the circuit fuse protection which is located on the back side of the Phase 6 microprocessor controller (computer) the display would read "CHECK MAIN FUSE." If the display continues after the fuse has been replaced then it is the fault of the Phase 6 microprocessor controller (computer).

B. L.E.D. DISPLAY INDICATORS

The L.E.D. indicator dots located on the top portion of the display indicates various Phase 6 OPL computer output functions while a cycle is in progress. These indicator dots (as shown in the illustration below) do not necessarily mean that the outputs are functioning. They are only indicating that the function output should be active (on).

1. ***L.E.D. DISPLAY INDICATOR NUMBER 1***



a. For Optional Reversing Models:
   1. This indicator dot is on when the drive (basket [tumbler]) motor is operating in the forward mode (clockwise direction).

2. ***L.E.D. DISPLAY INDICATOR NUMBER 2***
   a. For Optional Reversing Models:
      1. This indicator dot is on when the drive (basket [tumbler]) motor is operating in the reverse mode (counterclockwise direction).

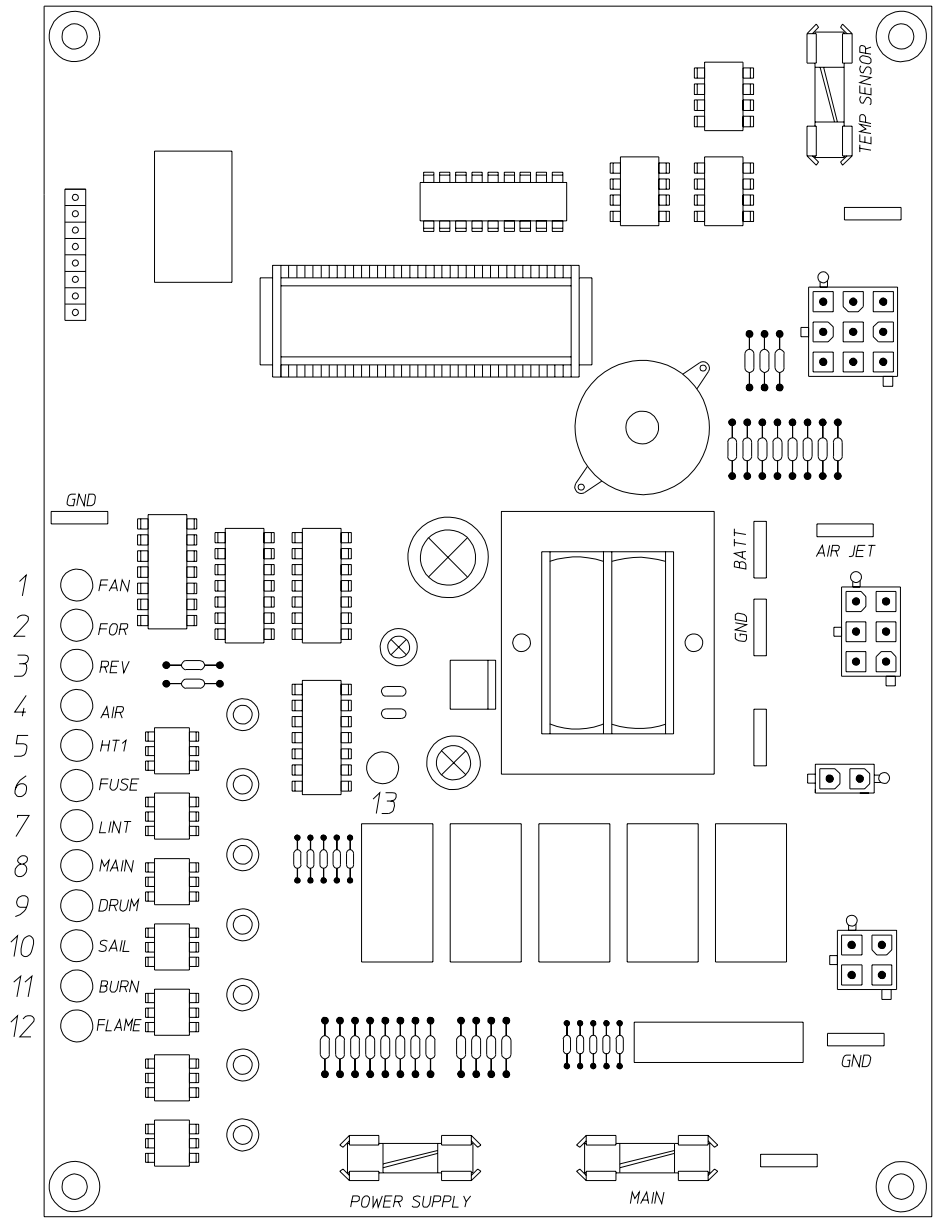
3. ***L.E.D. DISPLAY INDICATOR NUMBER 3***
   a. Heat Circuit Indicator:
      1. This indicator dot is on whenever the Phase 6 OPL microprocessor controller (computer) is calling for the heating circuit to be active (on).

4. ***L.E.D DISPLAY INDICATOR NUMBER 4***
   a. On Indicator:
      1. This indicator dot is on whenever a cycle is in progress. Additionally, when the Anti-Wrinkle program is active, the indicator dot will be on whenever the Phase 6 OPL microprocessor controller (computer) is in the Guard On Time program.

5. ***L.E.D DISPLAY INDICATOR NUMBER 5***
   a. Air Jet Circuit - ***OPTIONAL***
      1. This indicator dot is on at the end of the dryer cycle for approximately 60 seconds.

C. PHASE 6 OPL MICROPROCESSOR CONTROLLER RELAY OUTPUT L.E.D. INDICATORS

There are a series of five (5) L.E.D. indicators (ORANGE LIGHTS) located at the backside are of the Phase 6 OPL microprocessor controller (computer). These are identified or labeled (from top to bottom in the illustration below as: FAN-BLOWER, FOR-FORWARD, REV-REVERSE, AIR-AIR-JET, HT1-HEAT OUTPUT. There are a series of seven (7) L.E.D. indicators (red lights) FUSE-MAIN FUSE, LINT-LINT DOOR, MAIN-MAIN DOOR, DRUM-TUMBLER HI-LIMIT, SAIL-SAIL SWITCH, BURN-BURNER HI LIMIT, FLAME-FLAME PROBE). The L.E.D. in the center of the board (red light) indicates power supplied to the Phase 6 OPL microprocessor controller (computer). These L.E.D.'s indicate the inputs and outputs of the Phase 6 OPL microprocessor (computer) as it monitors the safety circuits.



MAN3449

1. "FAN" (BLOWER) Output L.E.D. Indicator

A. If the dryer is started and the blower motor is not operating, yet the Phase 6 OPL microprocessor controller (computer) display fan indicator dot and power supply input L.E.D. are on, but the fan output L.E.D. is off, then the fault is the Phase 6 OPL microprocessor controller (computer) itself.

1. If the motor is not operating. The fan indicator dot and output L.E.D. are also on, then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

2. "FOR" (FORWARD) Output L.E.D. Indicator (for optional reversing model ONLY)

A. If the dryer is started and the blower motor is operating, but the drive (basket/tumbler) motor is not, yet the Phase 6 OPL microprocessor controller (computer) display "FORWARD" indicator dot is on, the "FOR" (FORWARD) motor output L.E.D. is off; then the fault is the Phase 6 OPL microprocessor controller (computer) itself.

1. If the drive (basket and tumbler) motor is not operating and the forward indicator dot and output L.E.D. is on; then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

3. "REV" (REVERSE) Output L.E.D. Indicator (for optional reversing models only)

A. If the dryer is started and the blower motor is operating but the drive (basket and tumbler) motor is not, yet the Phase 6 OPL microprocessor controller (computer) displays "REVERSE" indicator dot is on but the "REV" (REVERSE) motor output L.E.D. is off; then the fault is of the Phase 6 OPL microprocessor controller (computer) itself.

1. If the drive (basket and tumbler) motor is not operating and reverse indicator dot and output L.E.D. is on; then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

4. "AIR" (AIR JET) Output L.E.D. Indicator - OPTIONAL

A. "AIR" is on with the display dot at the end of the dry cycle once the display reads "dONE," it is on for approximately 60 seconds and the output L.E.D. indicator and the display dot go out. If the air jet does not energize it is not the fault of the Phase 6 OPL microprocessor controller (computer). If the output L.E.D. or dot do not go on it is the fault of the Phase 6 OPL microprocessor controller (computer).

5. "HT1" (HEAT) Output L.E.D. Indicator

A. If the dryer is started and there is "No Heat" yet the Phase 6 OPL microprocessor controller (computer) display heat circuit indicator dot is on, but the "HT1" output L.E.D. indicator is off; then the fault is in the Phase 6 OPL microprocessor controller (computer) itself.

1. If the dryer is started and there is "No Heat" yet both the Phase 6 OPL microprocessor controller (computer) display indicator dots and the "HT1" output L.E.D. indicator are on; then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

6. "FUSE" (MAIN FUSE) Input L.E.D. Indicator

A. Should be on ALL the time (even if the dryer is not running.) If the L.E.D. is not on; then the display will read "CHECK MAIN FUSE." If the main fuse is good then the fault is on the Phase 6 microprocessor controller (computer).

7. "LINT" (LINT DOOR) Input L.E.D. Indicator

A. Should be on ALL the time (unless the lint door is opened then the "LINT" L.E.D. indicator will go out).

B. If the dryer is active (running) and the lint door is opened the "LINT" L.E.D. indicator will go out and the display will read "LINT dOOR." The dryer will stop until the Lint Drawer has been closed, at which time the L.E.D. display will read "PRESS START." At this time, to resume the drying cycle press "ENTER/START" key.

8. "MAIN" (MAIN DOOR) Input L.E.D. Indicator

A. Should be on ALL the time (unless the lint door is open or the main door is opened then the "MAIN" L.E.D. indicator will go out).

B. If the dryer is active (running) and the main door is opened the "MAIN" L.E.D. indicator will go out and the display will read "MAIN dOOR." The dryer will stop until the main door has been closed, at which time the L.E.D. display will read "PRESS START." At this time, to resume the drying cycle press "ENTER/START" key.

9. "DRUM" (TUMBLER HI-LIMIT) Input L.E.D. Indicator

A. Should be on at ALL times (unless the tumbler hi-limit switch opens prior during the cycle while the heat was on the display would read "dRUM Safety FAIL"). The machine will run with no heat for three (3) minutes or until the temperature drops below 100º F. Then the machine will shut down still displaying "dRUM SAFETY FAIL" with an audio indication.

10. "SAIL" (SAIL SWITCH) Input L.E.D. Indicator

A. This routine will prevent start up on the machine unless the sail switch is in the correct position. If the sail switch is in the closed position prior to start, the "SAIL" output L.E.D. indicator will be off, the machine will not start and the display will read "SAIL SWITCH FAIL" along with an audio indication.

B. If the sail switch opens during the cycle the "SAIL" output L.E.D. will go out and the display will read "NO AIR FLOW." The machine will run with no heat for three (3) minutes or until the temperature drops below 100º F. Then the machine will shut down still displaying "NO AIR FLOW" along with an audio indication.

11. "BURN" (BURN HI-LIMIT) Input L.E.D. Indicator

A. This routine monitors the temperature of the burner. If the burner hi-limit opens during the cycle while the heat was on the "BURN" output L.E.D. indicator goes out and the display reads "bURNER SAFETY FAIL." The machine will run with no heat for three (3) minutes or until the temperature drops below 100º F then the machine will shut down still displaying "bURNER SAFETY FAIL" with an audio indication.

12. "FLAME" (bURNER CONTROL FAIL) Input L.E.D. Indicator

A. This routine monitors the ignition control's gas valve output response. If the valve output signal is not present from the ignition control within the valve time limits the microprocessor determines the ignition control has failed. If this occurs when the cycle is active the "FLAME" output L.E.D. indicator will go out and the display will read "bURNER CONTROL FAIL." The machine will run with no heat for three (3) minutes or until the temp drops below 100º F. Then the machine will shut down still displaying "bURNER CONTROL FAIL" with an audio indication.

13. "POWER SUPPLY" Input L.E.D. Indicator

A. Should be on at ALL times (even if the dryer is not running). The power supply L.E.D. output indicator will not be on if the power supply fuse to the Phase 6 OPL microprocessor is not present. If the power supply fuse is bad the L.E.D. output will be off and there will be no display or keypad function. The "FUSE," "LINT," and "DRUM" output L.E.D. indicators will remain on.

C. L.E.D. CODES

1. Display Codes	
A	SLOPE FACTOR
ALL REV	ALWAYS REVERSING
ANTI WRINKL dELAY TIME	ANTI-WRINKLE DELAY TIME
ANTI WRINKL GUARd ACTIVE	ANTI-WRINKLE PROGRAM ACTIVE
ANTI WRINKL GUARd ON TIME	ANTI-WRINKLE GUARD ON TIME
AUTO CYCLE	AUTOMATIC MODE
b	HEAT LOSS (OFF SET) FACTOR
bURNER CONTROL FAIL	GAS ONLY POWER (24VAC) IS NOT EVIDENT AT GAS VALVE
bURNER FLAME FAIL	NO BURNER FLAME SENSED
bURNER SAFETY FAIL	GAS/ELECTRIC ONLY BURNER/OVEN OPEN HI-LIMIT CIRCUIT
bUZZ	BUZZER (TONE)
bUZZ TIME	BUZ TIME
CEL	DEGREE IN CELSIUS
CHECK MAIN FUSE	MAIN FUSE FAILURE
CLEAN LINT	PROMPT TO CLEAN LINT SCREEN, DRYER CYCLE LOCK-OUT
COOL	COOL DOWN CYCLE IN PROGRESS
COOL TIME_M	COOL DOWN TIME
COOL TEMP_	COOL DOWN TEMPERATURE
CYCLEA	PREPROGRAMMED CYCLE A
CYCLEb	PREPROGRAMMED CYCLE B
CYCLEC	PREPROGRAMMED CYCLE C
CYCLED	PREPROGRAMMED CYCLE D
CYCLEE	PREPROGRAMMED CYCLE E
CYCLEF	PREPROGRAMMED CYCLE F
dONE	DRYING or COOLING CYCLE COMPLETE OR DRYER IN ANTI-WRINKLE MODE
dRYING	DRYING CYCLE IN PROGRESS
dRY LEVEL_	DRYNESS LEVEL (PERCENTAGE OF EXTRACTION) (NUMERICAL VALUE)
dRY TEMP F_	DRYING TEMPERATURE
dRY TIME_M	LENGTH OF DRYING CYCLE
dRUM SAFETY FAIL	TUMBLER HI-LIMIT CIRCUIT IS OPEN
ELAPSE TIME_MIN	CYCLE DISPLAY TIME
ELECTRIC	SPECIFIC HEAT TYPE OR DRYER ELECTRICALLY HEATED
F	FABRIC TEMPERATURE
FAR	DEGREE IN FAHRENHEIT
FLASH	FLASH DISPLAY ACTIVE
GAS	SPECIFIC HEAT TYPE OF DRYER GAS HEATED
HOT	INDICATES AN OVERHEAT CONDITION
LINT dOOR	LINT DRAWER/DOOR CIRCUIT IS OPEN OR FAULT IN THE A.C. SWITCH CIRCUIT
LINT COUNT	DRYING CYCLES RANGE FROM 1-10 CYCLES BEFORE CLEAN LINT DISPLAY
_M REMAIN	CYCLE DISPLAY TIME
MAIN dOOR	DOOR CIRCUIT IS OPEN OR FAULT IN THE A.C. DOOR SWITCH CIRCUIT
MANUAL CYCLE	MANUAL MODE
MAX ANTI WINKL GUARd	MAXIMUM GUARD TIME
NFLASH	FLASH DISPLAY NOT ACTIVE
NoAIR FLOW	SAIL SWITCH OPEN
NoANTI WRINKL GUARd	ANTI-WRINKLE PROGRAM IS NOT ACTIVE
NoBUZZ	NO BUZZER (TONE)
NoHEAT	GAS ONLY IGNITION ATTEMPT FAILURE
NoREV	NO REVERSE
No ROTATE SENSOR	NO ROTATIONAL SENSOR SELECTED
PROGRAM	PROGRAM MODE
REAdY	NO CYCLE IN PROGRESS
ROTATE SENSOR ACTIVE	ROTATIONAL SENSOR SELECTED
ROTATE SENSOR FAIL	ROTATIONAL SENSOR CIRCUIT FAILURE
_RPM	MONITORS TUMBLER RPM WITH ROTATIONAL SENSOR CIRCUIT ACTIVE
SAIL SWITCH FAIL	GAS/ELECTRIC ONLY ATTEMPT MADE TO START DRYER WITH SAIL SWITCH DISABLED IN CLOSED POSITION
SELREV	SELET REVERSE
SPIN TIME	SPIN TIME
[redacted]	START ANTI WRINKLE GUARD CYCLE
	SPECIFIC HEAT TYPE OR DRYER STEAM HEATED
	STOP TIME
[redacted]AIL CHECK	FAULT IN M.P. HEAT SENSING CIRCUIT
[redacted]ENSOR FUSE	

2. FAULT CODES

bURNER CONTROL FAIL
- GAS MODELS ONLY POWER (24VAC) IS NOT EVIDENT AT GAS VALVE

bURNER FLAME FAIL
- The Phase 6 Microprocessor Controller (computer) ***DOES NOT*** SENSE FLAME VERIFICATION (GAS MODEL ONLY)

bURNER SAFETY FAIL
- GAS/ELECTRIC ONLY BURNER/OVEN OPEN HI-LIMIT CIRCUIT

dRUM SAFETY FAIL
- Fault in the TUMBLER HI-LIMIT CIRCUIT

HOT
- Indicates an OVERHEAT CONDITION

LINT dOOR
- When the LINT DOOR OR DRAWER is open or there is a ***fault*** in the LINT DOOR/DRAWER CIRCUIT

MAIN dOOR
- When the MAIN DOOR is open or there is a ***fault*** in the DOOR CIRCUIT

No AIR FLOW
- ***Fault*** in the SAIL SWITCH CIRCUIT (GAS/ELECTRIC MODELS ONLY)

No HEAT
- GAS ONLY IGNITION ATTEMPT FAILURE

ROTATE SENSOR FAIL
- ***Fault*** in the ROTATION SENSOR CIRCUIT

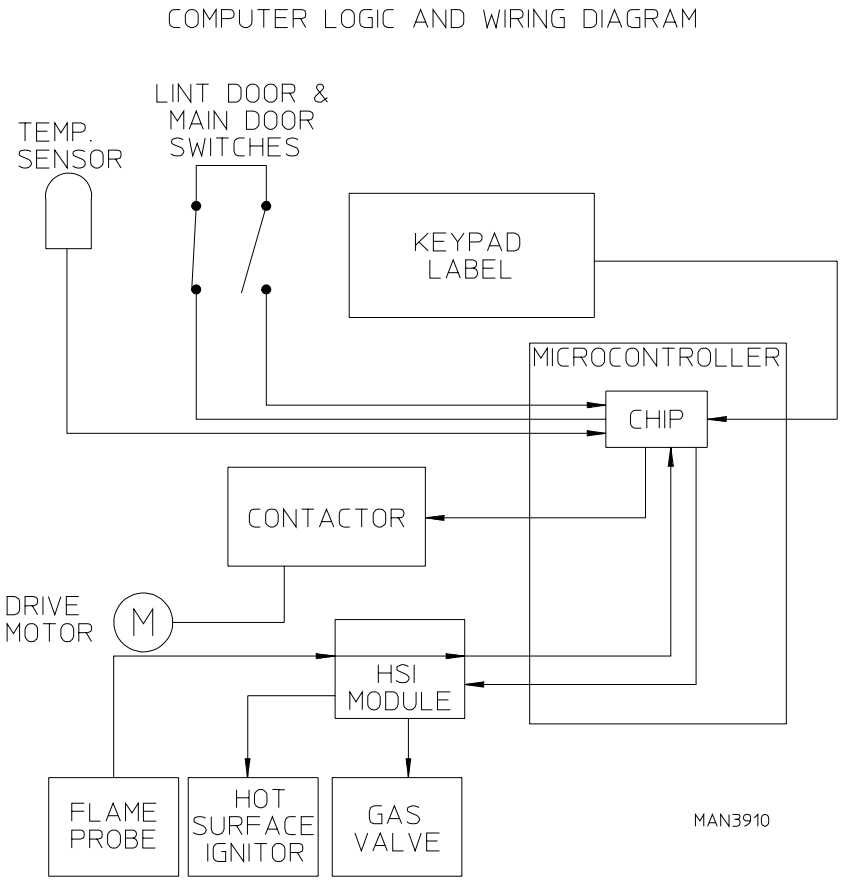
SAIL SWITCH FAIL
- ***Fault*** in the SAIL SWITCH CIRCUIT (GAS/ELECTRIC MODELS ONLY)

TEMP SENSOR CHECK TEMP SENSOR FUSE
- ***Fault*** in the MICROPROCESSOR TEMPERATURE SENSOR CIRCUIT

D. Computer Logic and Wiring Diagram

1. Operator enters desired selections.

2. Information entered is sent to the microprocessor via the keyboard.

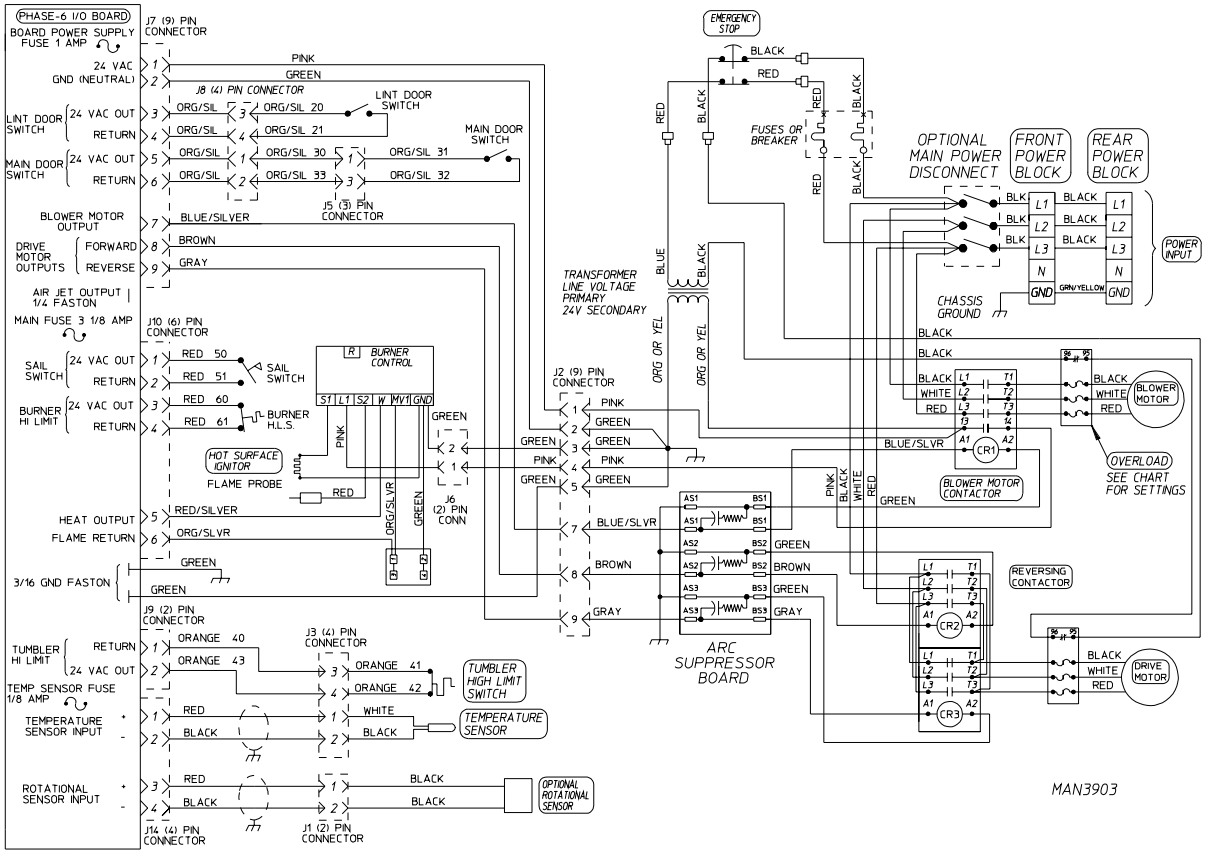


3. The input information is sorted, processed and executed by the microcomputer chip.

4. The microcomputer output signal activates the contactors and H.S.I. module which control machine functions.

> ***NOTE:*** When contacting ADC with electrical questions, please have on hand the correct wiring diagram number for your particular machine. This number is located on the top right-hand corner of the diagram. It is a six (6) digit number followed by a letter to distinguish the revision dates (see illustration).

The wiring diagrams used in troubleshooting are specifically for dryers manufactured at the time of publishing. Your particular model may vary slightly depending on the date of manufacturing and options available. The correct wiring diagram and number is either taped to the rear of the control door or each dryer, or placed in the control box. If your particular diagram is lost or unreadable, call ADC with the serial number of the dryer. ADC will be more than happy to send you a diagram by fax or mail.



1. No Display Condition

A. Check position of emergency stop to verify it is in operating position (pull or twist for operating position).

B. Check fuse one or two and if either are blown, replace

C. Take voltage reading across the microprocessor (J7) 9-pin connector pins 1 and 2. If no voltage is present at pins 1 and 2, double check the secondary (24VAC) side of transformer at the blower motor contactor number 13 to ground if no voltage is present check primary voltage to transformer.

D. Check voltage across fuses 1 and 2 to ground. If voltage is present, check emergency stop red and black wire to ground. If voltage is present, check voltage across 95 and 96 to ground of the drive motor overload. If voltage is present, check 95 and 96 to ground of the blower motor overload. If voltage is present and transformer terminations are good, then the transformer is bad. Refer to the schematic supplied with the dryer to assist in the troubleshooting of the dryer.

NOTE : In this next section all voltage checks must be done in the operating mode with the appropriate microprocessor dot on. Also appropriate L.E.D. output light on.

NOTE: In this next section when checking for voltage you are looking for 25 AC volts unless otherwise specified.

2. Drive motor reverses but does not forward, blower motor runs

A. If computer dot (first dot on the left) does not come on replace the computer.

B. Check for voltage across the coil of the forward contactor located in the reversing panel box. The contactor according to your diagram is marked CR2. The coil markings A1 and A2.

If voltage is present, replace reversing contactor.

If voltage is not present, there is a bad wire or termination between BS2 and contactor coil (CR2).

C. If there is voltage across the two AS2 terminals and no voltage across the two BS2 terminals, replace the arc suppressor board.

If there is no voltage across the two AS2 terminals on the arc suppressor board, the problem is a bad wire or termination between the AS2 board and the J7 9-pin computer connector no. 8 or faulty computer.

3. Drive motor works in forward mode but does not reverse, blower motor runs

A. If computer dot (second one from left) does not come on, check program to see if set for reverse.

B. If set for reverse, replace computer.

C. Check for voltage across the coil of the reversing contactor located in the rear panel box. The contactor according to your diagram is CR3, also the markings on the coil are A1 and A2.

If there is voltage, replace the coil or the complete contactor.

If there is no voltage, check for voltage across the two BS3 terminals on the arc suppressor board.

If there is voltage across the two BS3 terminals and no voltage across the coil of the reversing contactor (A1 and A2), the problem is bad wires or terminations between BS1 and the contactor coil.

D. If there is no voltage between the two BS3 terminals on the arc suppressor board, check for voltage across the two AS3 terminals on the board.

If there is voltage across the two AS3 terminals and no voltage across the two BS3 terminals, replace the arc suppressor board.

If there is no voltage across the two AS3 terminals, the problem is bad wires or terminations between the arc suppressor board and the computer 9-pin connector no. 9 or a faulty computer.

4. Blower motor does not operate, drive motor runs

A. Check for voltage across terminals A1 and A2 of the impeller contactor. This is the single contactor in the reversing control box.

If voltage is present check for voltage across the blower motor. If there is voltage at the blower motor replace the motor.

If there is no voltage at the blower motor, the problem is bad wires or terminations between the contactor and the motor.

B. If there is no voltage present at A1 and A2 of the contactor, check for voltage across the two BS1 terminals of the arc suppressor board.

If there is voltage present at the two BS1 terminals, the problem is bad wires or terminations between the two BS1 terminals and the coil (A1 and A2) terminals.

If there is no voltage across the two BS1 terminals, check for voltage across the two AS1 terminals.

If there is voltage across the two AS1 terminals and there is no voltage between the two BS1 terminals, replace the arc suppressor board.

C. If there is no voltage across the two AS1 terminals, the problem is bad wires or terminations between the two AS1 terminals and the computer board J7 9-pin connector no. 7 or faulty computer.

5. Lint Door Condition

NOTE : Make sure main door and lint door are closed. Also, if checking either switch, the plunger must be depressed.

A. Check L.E.D. input light "LINT" on the component side of the computer. If the light is on, replace the computer.

B. Check voltage (24VAC) from J7 9-pin connector no. 3 to ground. If voltage is present check no. 4 to ground if voltage is present replace board.

C. If no voltage is present at J7 9-pin connector no. 4 to ground, but voltage is present at no. 3 to ground. The problem is a bad switch, wires or termination between J7 to J8 and J8 to the lint switch no. 20 and 21.

D. If no voltage is present at J7 9-pin connector no. 3 to ground, then voltage should not be present at no. 5 to ground. Replace the board.

6. Main Door Condition

NOTE : Make sure main door and lint door are closed. Also, if checking either switch, the plunger must be depressed.

A. Check L.E.D. input light "MAIN" on the component side of the computer. If the light is on, replace the computer.

B. Check voltage (24 VAC) from J7 9-pin connector no. 5 to ground. If voltage is present, check no. 6 to ground. If voltage is present, replace board.

C. If no voltage is present at J7 9-pin connector no. 6 to ground, but voltage is present at no. 5 to ground. The problem is a bad switch, bad wires or terminations J7 to J8. J8 to J5 and J5 to main door switch no. 31 and no. 32.

7. "No Heat" drive and blower motors run, display reads normal (gas models).

A. Check L.E.D. input light "HT1" on the component side of the computer. If the light is on replace the board.

B. If the L.E.D. input light "HT1" on the component side of the computer is on and there is no voltage to the HSI module "w" the display will read "BURNER CONTROL FAIL." The problem is bad wires or terminations between microprocessor and HSI module.

C. If voltage is present on the HSI module "w" to ground. Check voltage at the gas valve if voltage is present across the two yellow wires at the gas valve and the gas supply is on then the fault is that of the gas valve.

8. Microprocessor

A. Replace the temperature sensor underneath the basket on a bracket (the bullet shaped device).

B. If it still read "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE, "unplug J3 4-pin connector from the temperature sensor bracket. Also, unplug the microprocessor J14 4-pin connector from the computer board. Take a continuity reading from J14 no. 1 to J3 no. 1, then from J14 no. 2 to J3 no. 2.

   If there is no continuity, check for break in wire, a short to the ground, loose terminations, or even replace the wire.

   If there is continuity, computer board is faulty.

IMPORTANT

MANUAL RESET HI-LIMIT INSTRUCTIONS
FOR PHASE 6 MODELS

This dryer was manufactured with a manual reset burner hi-limit thermostat which is monitored by the phase 6 computer. If the manual reset burner hi-limit thermostat is open prior to the start of the machine, the dryer will start momentarily and the shut down displaying "burner safety fail" with an audio indication.

If the manual reset burner hi-limit opens during a drying cycle, the display will read "burner safety fail" with an audio indication. If the drum temperature is above 100º F, the dryer will continue to run with no heat for three minutes or until the drum temperature has fallen below 100º F. The clear and stop button on the Phase 6 keypad must be pressed to clear this "burner safety fail" condition. The manual reset burner hi-limit switch must be reset "manually" prior to the start of the next drying cycle.

This hi-temperature condition may be caused due to a restricted exhaust, poor airflow or improper burner oven operation.

The location of the manual reset hi-limit switch is on the right side of the burner box.

IMPORTANT

HEATING UNIT IS EQUIPPED WITH A
HI-LIMIT THERMOSTAT
WHICH MUST BE ***RESET MANUALLY.***

WARNING - DISCONTINUE POWER TO DRYER
BEFORE ATTEMPTING TO RESET
HI-LIMIT.

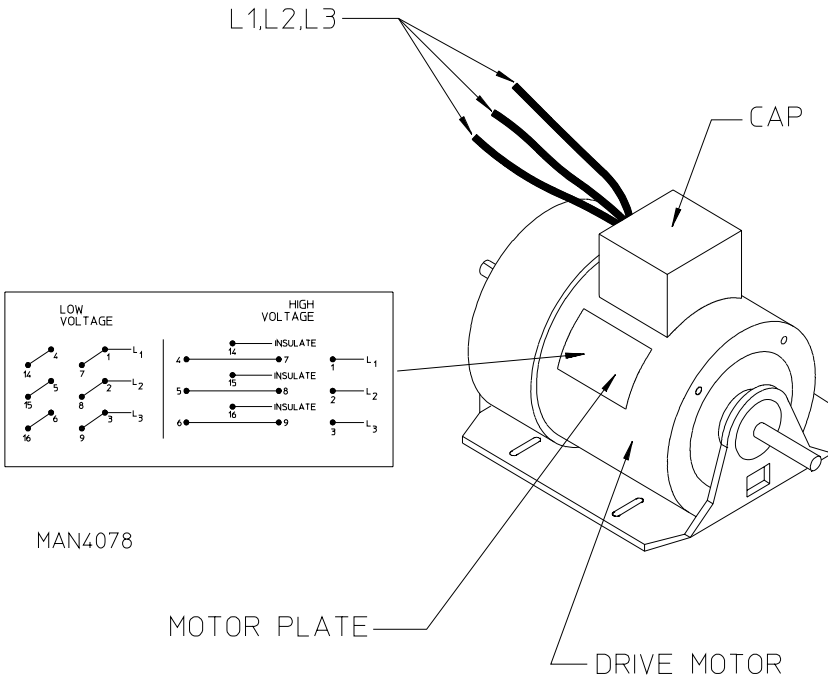
ADC P/N: 114076

SECTION VIII

Technical Information

The following section contains various technical information important to the service person in servicing and maintaining the dryer.

A. MOTOR PLATE (HIGH AND LOW VOLTAGE)



The motor plate is located on the side of the drive motor (see illustration) and contains a graphical representation of the motor wiring for both low and high voltage ratings.

Removing the cap reveals the wiring to the motor. On each wire there is a number which corresponds to the numbers on the motor plate. Depending on whether the dryer is operating on low or high voltage, the wiring should match the motor plate as follows:

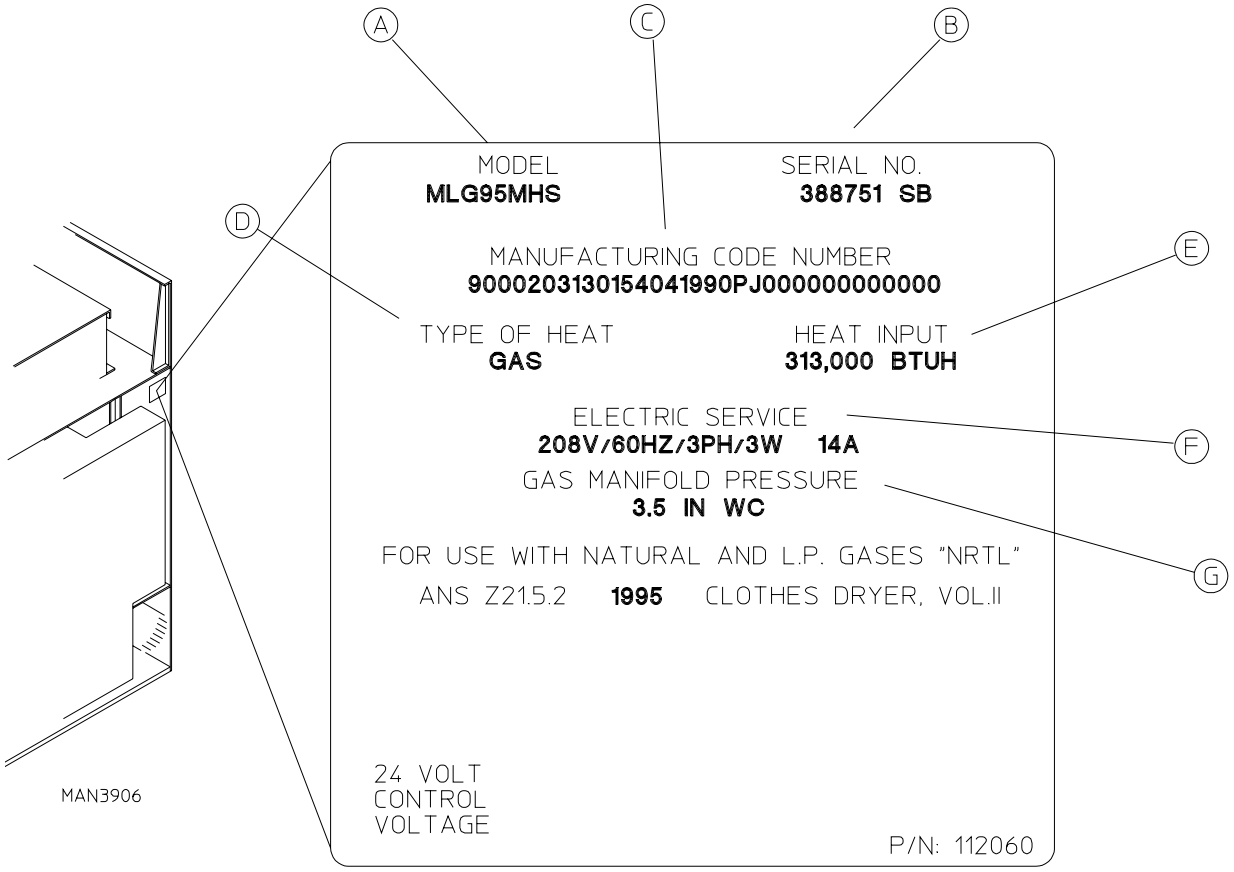
The dots and lines represent connections (see illustration).

For example:

On low voltage
- wire no. 14 is connected to wire no. 4
- wire no. 1 is connected to wire no. 7, which in turn are both connected to L1

On high voltage
- wire no. 14 is insulated or capped
- wire no. 4 is connected to wire no. 7
- wire no. 1 is connected to L1

B. DATA LABEL
Contacting American Dryer Corporation (ADC)



When contacting ADC, certain information is required to ensure proper service and parts information. This information is on the data label, located on the top right corner of the dryer, viewed from the rear (see illustration). When contacting ADC, please have the model number and serial numbers readily accessible.

Information on the Data Label

A. Model number - The model number is an ADC number which describes the size of the dryer and the type of heat (gas or steam).

B. Serial number - The serial number allows ADC to gather information on your particular dryer.

C. Manufacturing code number - The manufacturing code number is a number issued by ADC which describes all possible options on your particular model.

D. Type of heat - Describes the type of heat; gas (natural or L.P.), steam or electric.

E. Heat input - (For gas dryers) describes the heat input in British Thermal Units.

F. Electric service - Describes the electric service for your particular models.

G. Gas manifold pressure - Describe the manifold pressure as taken at the gas valve pressure tap (see "using a manometer").

C. HOW TO USE A MANOMETER

1. With dryer in nonoperating mode, remove plug on the gas valve pressure tap.

2. Attach plastic tubing to pressure tap. Fitting is supplied with manometer (see illustration).

3. Attach manometer to dryer using magnet.

> ***NOTE:*** Place manometer in a position so that readings can be taken at eye level.

4. Fill manometer with water, as shown in illustration to the zero level.

5. Start dryer. With burner on, take a reading.

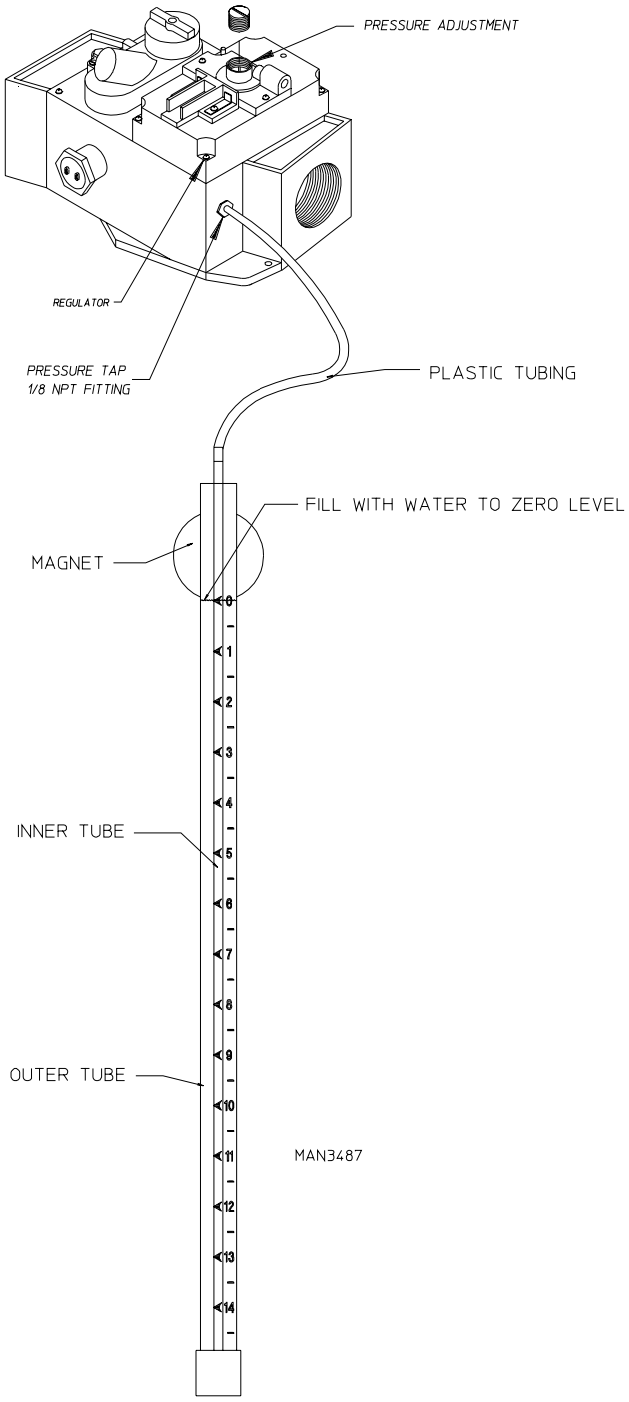
   A. Read water level at the inner tube. Readings should be taken at eye level.

   B. Correct readings should be:

   NATURAL GAS: 3.5 - 4.0 inches W.C.
   L.P. GAS: 11 - 10.5 inches W.C.

6. If water column pressure is incorrect refer to "TO ADJUST GAS PRESSURE"

7. Reverse procedure for removing manometer.



D. AD-95/ML-95 TOOL LIST

Straight Head Screwdriver

Phillips Head Screwdriver

Sensor Pin and Socket Tool (P/N 122801)

Pliers

1/4" Nut Driver

3/8" Open End Wrench

5/8" Open End Wrench

3/8" Socket Wrench

1/2" Socket or Open End Wrench

1/4" Open End Wrench

5/16" Socket or Open Wrench

1/2" Socket Wrench

7/16" Socket or Open End Wrench

5/16" Nut Driver

12" Pipe Wrench (2)

1/8" "T" Shaped or "L" Shaped Allen Wrench

3/16" "T" Shaped or "L" Shaped Allen Wrench

Wire Cutters

1/2" Allen Wrench

3/8" Allen Wrench

Channel Locks

Manometer (ADC P/N 122804)

MP Pin Extraction Tool (ADC P/N 122800)